Paper

Apr. 20, 1951

JOHNS-MANVILLE'S WALL BOARD MILL AT NATCHEZ
SEE PAGE 22

WOOD PULP

G

Established 1886

"O wonderful, wonderful, and ye: again wonderful!"
SHAKESPEARE

Since the turn of the century, research and ingenuity, new machines and techniques have evolved an amazing array of "miracle products" from pulp.

Wonderful is the diversity of papers, rayons, plastics and other pulp-produced specialties. Creative imagination and constant improvements continue to make pulp a prolific source of new comforts and conveniences for a good life.

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BROWN INSTRUMENTATION IS THE MODERN APPROACH TO PAPER INDUSTRY PROCESSES

PRODUCTION UP COSTS DOWN ...with BROWN STOCK WASHER CONTROL SYSTEM

Brown ColorGrafic panel not only shows flow lines and processing equipment but also identifies the location of each controller with respect to the equipment. *For additional information, write for Folder 228-1.*

Stock washers at large southern mill. Main washer panel in background.

A DIRECT answer to the need for countering the high cost of materials, labor and equipment in paper mill operation, has been found in such developments as the Brown Stock Washer Control System. Individually engineered instrumentation to fit specific washing requirements is producing extremely satisfactory results . . . by controlling the more important variables and indicating or recording the others.

Variations of this system, now operating in many of the country's largest mills, range from the conventional control cubicle to the modern graphic panel. All are supplied with instruments and accessories mounted at the Brown factory, and with all back-of-panel piping and wiring completed.

Immediate operating benefits include . . . (1) freeing operators for other duties . . . (2) increasing production of uniformly washed stock . . . (3) more efficient use of chemicals . . . (4) decrease in use of steam and shower water . . . and (5) a reduction in overall costs.

For more detailed information, write for Data Sheet 2.0-22a or call in your local Honeywell engineer . . . he is as near as your phone. MINNEAPOLIS-HONEYWELL REGULATOR CO., *Industrial Division*, 4510 Wayne Ave., Philadelphia 44, Pa. Offices in more than 80 principal cities of the United States, Canada and throughout the world.

MINNEAPOLIS Honeywell

BROWN INSTRUMENTS

RESEARCH KEEPS **B.F.Goodrich** FIRST IN RUBBER

They changed to grommet V belts and got twice as much service

B. F. Goodrich grommet V belts cut costs 20 to 50%

THE belts on this drive are under terrific tension turning the big splintery, rough-surface drum and that's why ordinary V belts lasted only four months. B. F. Goodrich grommet V belts were installed and are averaging 10 months' service in spite of the heavy overload frequently required. Here's where that extra strength comes from:

Endless—A grommet is endless, made by winding heavy cord on itself to form an endless loop. It has no overlapping cord sections. Because most of the failures in ordinary V belts occur in the region where cords overlap, the endless grommet V belt eliminates such failures.

Concentrated cord strength—All of the cord material in a B. F. Goodrich grommet multiple-V belt is *concentrated* in twin grommets, positioned close to the driving faces of the pulley. No layers of cords to rub against one another and generate heat; cord and adhesion failures are reduced.

Better grip, less slip—Because a grommet is endless, a grommet V belt is more flexible, grips the pulleys better. Size for size, grommet multiple-V belts will give ⅓ more gripping power, pull heavier loads with a higher safety factor.

Only B. F. Goodrich has the grommet!—No other multiple-V belt is a grommet V belt (U. S. Patent No. 2,233,294). Now available in C, D and E sections. See your local B. F. Goodrich distributor. Ask him to show you his "X-ray" belt that illustrates grommet construction clearly. *The B. F. Goodrich Company, Industrial and General Products Division, Akron, Ohio.*

Grommet V Belts BY
B.F.Goodrich
RUBBER FOR INDUSTRY

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PAPER KNIVES

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Customers keep coming back for "Red Streak" Knives . . . for good, sound business reasons: *Every cut is a clean, straight shear-cut,* because correct taper and face clearance eliminates drag against stock . . . and because accuracy of edge and thickness of body are uniform, end to end. *Cutting edge stays sharp longer* because of the special qualities of Simonds S-301 Steel. And fast, smooth cutting is assured by Simonds "Mirror Finish," imparted by huge, special 15-ton grinders.

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Paper TRADE JOURNAL

VOL. 132 **APRIL 20, 1951** **No. 16**

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NEXT WEEK

An interesting study of some characteristics of defibrated Douglas Fir, and hardboard made from it, will be found in "Effect of Molding Temperatures on the Strength and Dimensional Stability of Water Soaked Douglas Chips," by Sidney L. Schwartz and P. K. Baird.

Number I in a new series of articles on maintenance of various types of pulp and paper mill equipment, contains valuable information for all users of electric trucks and is entitled "New Ohio Boxboard Maintains 195 Industrial Truck Batteries" by J. E. Vaughan.

REMEMBER THESE DATES

APRIL 26-28: The American Physical Society, Division of High-Polymer Physics, Ninth meeting at the National Bureau of Standards, Washington, D. C.

APRIL 30 - MAY 4: Materials Handling Conference; Held concurrently with Nat'l. Materials Handling Expo., International Amphitheatre, Chicago, Ill.

MAY 6-9: American Pulp & Paper Mill Supts. Ass'n, Northwestern Div., Spring Meeting, Radisson Hotel, Minneapolis, Minn.

MAY 7-11: Forest Products Research Society, Annual Meeting and Industry Show of 1951, Convention Hall, Philadelphia, Pa.

MAY 11-12: American Pulp & Paper Mill Supts. Ass'n., Penn. New Jersey-Delaware Div., at Hotel Easton, Easton, Pa.

MAY 15-16: American Institute of Chemical Engineers, Regional Meeting, Hotel Muehlebach, Kansas City, Mo.

MAY 25: The Miami Valley Div., of the American Pulp & Paper Mill Supts. Ass'n., meeting at the plant of the Orr Felt and Blanket Co., Piqua, Ohio.

JUNE 5-6: National Paper Box Mfrs. Assn., Hadden-Hall, Atlantic City, N. J.

JUNE 22-23: Maine-New Hampshire Section of TAPPI, meeting to be held at the Eastern Slope Inn at North Conway, N. H.

JUNE 24-28: American Pulp & Paper Mill Supts. Ass'n. National Convention, to be held at the Multnomah Hotel, Portland, Oregon.

JUNE 27-30: Empire State TAPPI, meeting at the White Face Inn, Lake Placid, N. Y.

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SCORING OF DRIER ROLL BEARINGS ELIMINATED BY SUNVIS H.D. 740 OIL

Lubricants in the bearings of high-speed paper-mill driers are subjected to heavy loads, destructive temperatures, and considerable contamination. Most oils will break down in continued operation under such conditions. When they do, bearings become scored. That happened in one of the world's largest paper-making mills, as disclosed in a routine inspection of drier roll bearings lubricated for 24 months with a supposedly adequate oil.

The mill requested the cooperation of the machine and bearing manufacturers in finding an oil that would eliminate such trouble in the future. As a result, many different oils were compared on various extreme-pressure testing machines. Sunvis H.D. 700 Oils, and one other, proved to be the best by far, among all those tested. A Sun oil was chosen because of the company's reputation for service.

In actual operation the oil chosen, Sunvis H.D. 740, has well justified its selection. Since its use, bearing race scoring and the threat of bearing failures have been minimized. It has also minimized the danger from the unavoidably continuous contamination. The mill's engineers recently demonstrated their satisfaction by specifying Sunvis H.D. 740 Oil for a new machine—*one that will be among the fastest producers in the world.*

YOUR PAPER-MAKING MACHINES

will operate better if you lubricate the circulating systems with Sunvis H.D. 700 Oils. They maintain an unbroken lubricating film under heavy pressures and at high temperatures, thus preventing scoring in drier roll anti-friction bearing races. Sunvis H.D. 700 Oils are unsurpassed for protection against rust and corrosion. And their exceptional stability permits them to be used for years without replacement. For complete information, call or write the nearest Sun Office.

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Paper TRADE JOURNAL

TRENDS

Office of the PAPER TRADE JOURNAL,
Wednesday, April 18, 1951.

History perhaps will name the post-Korean era as a time of extreme tension between management and labor, an epoch marked by the revitalization of American ideals and tradition.

Currently, it is described as one of "compounded confusion" in government thinking and direction, and a deadlock between management and labor. Government hopes for reconciliation of the two-months' old disagreement over wage stabilization seemed ill-founded to press time. Officials of the National Association of Manufacturers hold that a stabilization agency with power to settle non-economic issues is "a hammer blow at defense production, a deliberate evasion of the laws of the land, and a tremendous contribution to ruinous inflation." In announcing its opposition to the Truman formula, the NAM accuses labor of using the emergency to achieve by coercion.

Regulation Roundups

With some minor revisions, the Defense Production Act of 1950, which expires of June 30, will probably be extended for another year, official Washington believes.

CMP. Controlled Materials Plan.

The new priorities system is designed to "allocate and direct raw materials and finished products into essential channels in order to meet military and essential civilian requirements. Open-ended, the system will be extended from steel, copper and aluminum to cover other critical materials, including freight car output, probably paperboards, containers, etc., possibly pulpwood and wood pulp.

NPA, Reg. 4, MRO . . DO's 97. Removal of paper, paper products, paperboards and other packaging materials from the list of items to which the MRO order could be extended had been anticipated in this column. Revised order, dated April 16, will relieve pressure on paper supplies.

Manufacturers Pricing Regulation. The much revised regulation is due for release this week. Rises in raw material costs will be allowed to a "cut-off" date which will vary by products.

Waste paper and cotton cuttings ceilings. Release of these rollback orders also is imminent. Inasmuch as paperboards and some papers will be rolled back in the Manufacturers Pricing Order, it is believed that the waste paper and cotton orders will be released simultaneously.

Machinery Pricing Order. A ceiling order for machinery will follow on the heels of the manufacturers' order.

Printing Pricing Regulation. This regulation also is awaiting finalization.

Wholesalers and Distributors Pricing. Such an order is also in the works. No date is set for its release.

Wood Pulp Price Ceiling Order. Washington sources can give no indication of the probable date of release of the wood pulp pricing regulation. Domestic prices alone could be covered, though the importers margin will be frozen, OPS said last week.

Import-Export Price Order. This order also should be released this week.

Wood Pulp Pointers

Much more Canadian kraft pulp will be coming to this and other world markets in the next few years. Simultaneously with announcement of a merger of two large Pacific Coast lumber firms which involves more than $100 billion is release of news of a $16 million extension of sulfate plant production. This would be a doubling of present output from 300 to 500 tons daily. Both companies produce solely for the market.

Also publicized last week is development of pulp reserves in the prairie northlands of Alberta, Manitoba, and Saskatchewan. Alberta's new mill will be under construction this year. Manitoba sees itself able to supply pulpwood for another mill from the Swan River or The Pas area—in addition to Manitoba Paper Co. A kraft pulp mill that would yield at least 100,000 tons annually is seen possible in Saskatchewan stands, location mentioned as Prince Albert. Further surveys of the resources of the areas are to be made this summer.

Finnish Labor Elections

The threat of Communism to Finland is more than the shadow cast by geographic location, in the opinion of American writers. A showdown in the struggle with Soviet infiltration of labor is seen once more in the elections to the representative assembly of the Finnish Federation of Labor which began on Easter Sunday and ended on April 15. The Communists are said to be spending freely to gain inroads on the Social Democratic vote, and to be leaving no stone unturned to embarrass the coalition government which has not yet been able to halt inflation.

Because U. S. paper mills stand to lose an important source of market pulp supply should Communism get control of Finland's economy, news of her internal upsets is usually exaggerated. The situation is reported as a ceaseless struggle with Communists in Labor, but that Finland has roundly defeated them again and again and expects to do so again.

The Waste Paper Market

Waste paper trading has been called by many names. Dealers and brokers find it fascinating and lucrative, despite its griefs of feast or famine, its problems of quality and ever-soaring freight costs.

To board mills and, increasingly so, to tissue mills, it is an essential segment of pulp supply. To market pulp consumers generally, it is an avenue of secondary pulp supply which must be kept wide open. In times of pulp shortages and rocketing prices, survival is dependent on available pulp substitutes in higher grades of waste paper.

Mills which at one time or another have run upon sub-quality packings have chosen to view these incidents as characteristic of the industry as a whole, and view their deals in waste paper as horse trading.

This columnist holds no brief for the waste paper industry; it needs none. However, where mutual confidence exists between mill and dealer, the paper and paperboard industry is assured of sound business practices without the terrific rocketing and dips which have been a part of this market since last July 1.

Currently, the market has sagged deeply from its highs of March. At a time when flood tides of Spring collections were being reached, publicity campaigns to draw out *news*, magazines, and *corrugated* have been so successful that the market is inundated, warehouses bulging, and packers unable to handle. Mills have cut back their rate of buying in anticipation of such drops, and the market probably will sag from the very weight of supplies. Weakness is spreading to high grades, although to press time no breaks in prices had been reported.

Unquestionably many prices were out of line with wood pulp prices; and price ceilings have been looked for as a means of stabilizing the market. It is the opinion of some in the industry that some sort of conference between mills and waste materials dealers on the supply situation—such as exists in the midwest area—would be highly constructive in assuring the mills of a continued flow of secondary pulp supply, and give the packers a fair return over high labor costs.

A report on the midwest's waste-paper drive says that its 13-week campaign into 22 cities ended on March 16 and was seen as successful in combating the worst of the shortage in December. This type of campaign is flexible enough to stop and start within a short period of time, *Official Boards Markets* states.

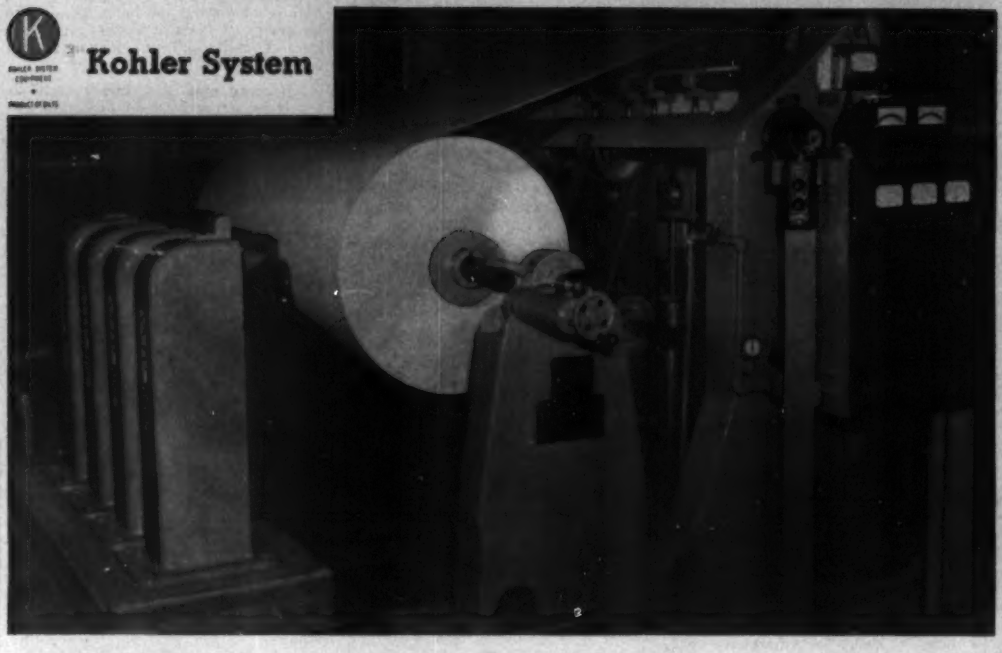
—E. P. N.

Paperboard Production (Tons)*

	Apr. 7 1951	Mar. 31 1951	Apr. 8 1950
Production	253,702	236,532	210,848
New Orders	328,223	257,563	244,695
Unfilled Orders	778,034	704,936	406,641

* Source: NPA.

Kohler System



CONTROL - THEN CONVERT WITH DILTS CONSTANT TENSION SINGLE POSITION BACKSTAND

Constant tension is an absolute necessity when a quality product is to be produced. To provide constant tension there is nothing on the market to equal the "Kohler System" of tension control.

The backstand here shown is operating on delicately controlled light weight sheets for coating and waxing operations at production speeds of 1500 feet per minute.

The same tension from full roll to core is maintained by means of "Kohler System" pneumatic running belt tension. The degree of tension on the web is air controlled and may be varied for the different grades of material. Once the tension control is set for a particular grade the attention of the operator is no longer required.

This backstand is also ideally suited for the unwinding of board on jobs such as laminating, where tension control is required to produce a good flat product, perfectly bonded.

The "Kohler System" is a thoroughly proved method of maintaining uniform tension—has been widely employed on continuous reels with "flying paster" and "flying starters" over sixty years.

Write for DOM No. A and Bulletin 4 DM

Dilts MACHINE WORKS

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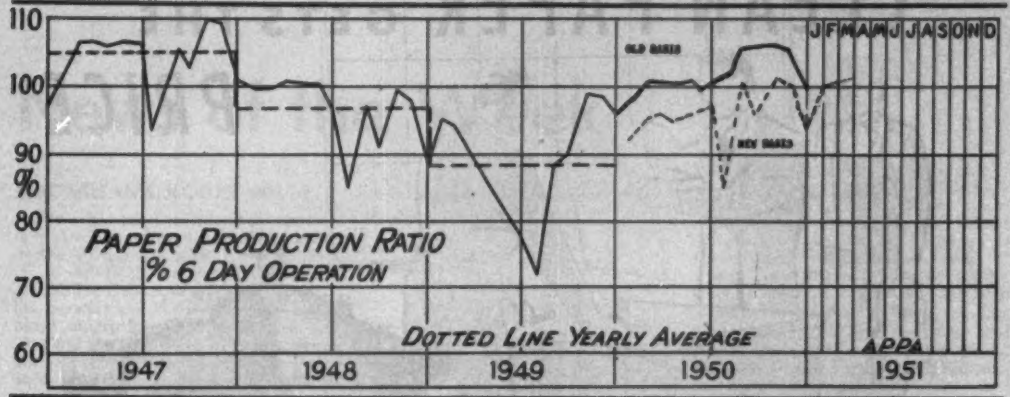
Uniform Web Tension Control • Improved Quality • Less Waste

OUR BUSINESS

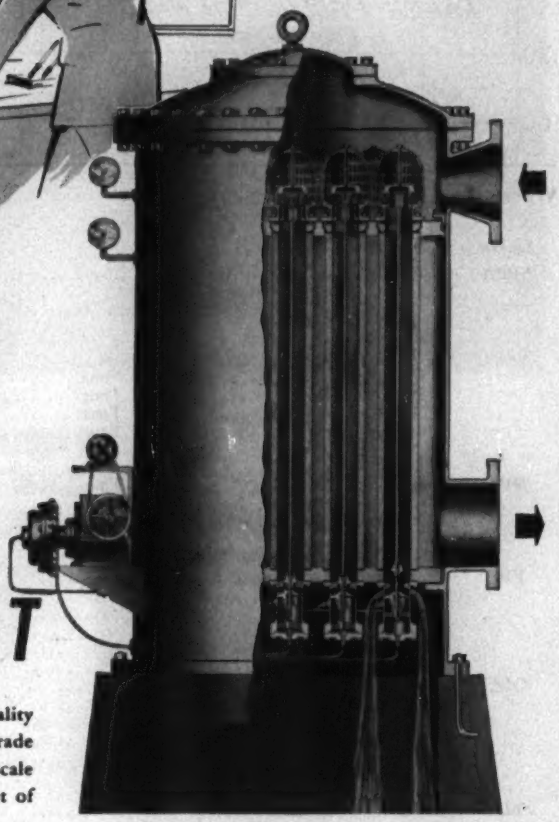


Weekly Brief of Important Figures

Source	Production	WEEK ENDING Apr. 7, '51	Mar. 10, '51	Apr. 8, '50
APPA	Paper Production Percent Capacity[2]	103.6	101.5	94.6
	Unbl. Kraft Paper Production Percent	94.9	99.2	90.1
NPA	Paperboard Operating Ratio Percent Inch Hours	106	106	93
		Feb. 1951	**Jan. 1951**	**Feb. 1950**
APPA	Paper Production[6] (Except Newsprint and Building Papers) ..... Tons	794,000	892,000	726,000
	New Orders ..... Tons	803,000	936,360x	737,000
	Unfilled Orders ..... Tons	942,290	910,835x	516,865
	Shipments ..... Tons	788,000	885,000	730,500
		Mar. 1951	**Feb. 1951**	**Mar. 1950**
NPA	Paperboard Production ..... Tons	984,405	977,946	908,600
	New Orders ..... Tons	946,819	987,609	952,600
	Unfilled Orders ..... Tons	704,936	758,562	371,800
	Our Customers Activities Index[1]	**Latest Mo.[5]**	**Previous Mo.[5]**	**Year Ago[5]**
FRS	Manufactures Total Index	225	227	189
	Durable Mfg. Index	263	266	206
	Nondurable Mfg. Index	194	196	175
	Chemical Products Index	286	286	249
	Mfg. Food Products Index	150	160	149
	Printing and Publishing Index	172	180	157
ODC	Magazine Advg.-Printer's Ink Index	319	342	326
	Retail Sales Combined Adjusted Index	364.4	343.4	299.9
	Drug Index	230.6	224.5	220.9
	General Merchandise Group Index	375.7	332.5	290.3
	Grocery and Combination Index	422.5	424.4	356.0
	Prices Index			
BLS	Consumers Price Index[1]	181.5	178.8	168.2
	Wholesale all Commodities[2]	180.0	175.3	151.5
	Wholesale Foods[2]	182.3	179.0	154.8
	Commodities other than Farm Products and Foods[2]	170.2	166.6	145.8
	Wholesale Pulp and Paper[2]	196.5	189.0	155.9
	Purchasing Power of Dollar, Consumers Prices[1]	55.1	55.9	59.5
	General Activity Index			
FRS	Mfg. Production-Worker Payroll	424.9	415.1	329.2
	Unemployment Compensation Initial Claims (M)	1,080	1,051	1,725
	Miscellaneous Carloadings–Thousands of Cars	1,498	1,814	1,240
	Electric Output (Million KW hr.)	36,726	35,779	31,677
PTJ	Average 32 P & P Common Stocks as of April 10.	$38.09	$37.23	$31.89
	Average Indicated Dividends Common Stocks as of April 10	2.34	2.34	2.26

[1] 1935-39=100 Unadjusted Index
[2] 1926=100
[3] New 6-7 day basis.
[4] For details see APPA Monthly Statistical Summary—February 1951 Estimated Figures
[5] Latest Month Available on Request
[6] Revised figures.

CLEAN PAPER GETS THE PRICE



ADAMS

WATER FILTRATION GETS THE DIRT

In kraft or tissue, book or newsprint—water quality is as critical as chip quality. No matter what grade of pulp or paper you make, sand, grit and pipe scale are expensive when they keep your product out of the top price brackets.

Water filtration with the fully automatic Adams Poro-Screen or Poro-Stone Filter takes out price-lowering impurities *before* they become part of the stock. Continuous backwashing effectively prevents clogging of filter elements—avoids costly, cumbersome cleaning operations.

Remember—in its early stages your product is about 98% water, and most water-borne impurities stay with the stock.

Find out what Adams filtration has done in situations like yours. Write for the new 20 page booklet on water filtration in the Pulp and Paper Industry, Bulletin No. 691.

R. P. ADAMS COMPANY, INC.

231 EAST PARK DRIVE, BUFFALO 17, N. Y.

News of the Week

Paper TRADE JOURNAL

MAC MILLAN & BLOEDEL MERGE

OTTAWA—Another extremely important development in the rapid growth of the British Columbia forest industry is seen in the merger of the H. R. MacMillan Export Co., Ltd., and Bloedel, Stewart and Welch Ltd. The combined enterprise is to be known as MacMillan and Bloedel Ltd. The merger reportedly involves more than $100 million.

Each of the companies will have a share in the merged enterprise in relation to the assets and on terms to be submitted later to the shareholders. For the time being only, each company will continue to carry on under its present name.

As a result of this combination, it is expected that more employment will be created and the product manufactured from each acre of forest logged will be improved, justifying further expansion of pulp mill and plywood plant production at Nanaimo, Port Alberni and Vancouver, all in British Columbia. Timber needs of projected new facilities would be met without any increase in the present rate of logging but through improved use of land logged, it is pointed out, with the merged companies employing about 8,000 workers and new projects creating 400 to 500 new jobs in the next two years. In addition, the international marketing and distribution facilities of the MacMillan organization would be substantially enlarged.

A $16 million extension to the H. R. MacMillan Co., Ltd., is planned and is expected to double its output.

PLAN NEW MILL FOR OREGON

Plans for the construction of a pulp mill in central Oregon are reported under consideration by Crown-Zellerbach Corp. The company has had representatives in the area for some months studying the possibilities of utilizing millions of feet of jack pine.

COLUMBIA CELLULOSE STARTS

The new dissolving pulp mill of Columbia Cellulose Co., Ltd., Canadian affiliate of the Celanese Corp. of America, began operations on April 16.

It has an indicated annual capacity of about 70,000 tons of high alpha cellulose, sufficient raw material to produce in excess of 200 million pounds of acetate yarn and staple fiber.

Celanese, which is believed to be the first producer of chemical fibers to construct its own pulp mill, will utilize this output in connection with recently announced plans for expansion of textile, plastics and chemical operations in the United States, Canada and other countries.

Output of the mill will result in an estimated 75 percent expansion of the 1950 supply of dissolving pulp for acetate yarn. On the over-all basis, the mill's annual production will be equivalent to 15 percent of all dissolving woodpulp consumed by the entire United States rayon industry last year.

FITCHBURG MODERNIZATION

The program of modernization and expansion covered by Certificates of Necessity authorized for Fitchburg Paper Co., Fitchburg, Mass., follows:

1. To modernize two paper machines, by installing a size press on one and a new fourdrinier on the other.

2. To install a modern white water system on one of the machines with the use of Bird-Gibbs Clarifiner.

3. To improve stock preparation by replacing beaters with hydrapulpers.

4. To expand the deinking operation and install a new high density bleaching system.

NO NEWSPRINT AT COLUMBINE

Columbine Development Co., New Castle, Colo., has received a certificate of necessity permitting the firm to spend up to $15,846,000 for construction and equipment costs. The certificate is not valid unless construction is started in six months.

The Colorado mill will not make newsprint as was originally planned. The entire pulp output probably will go to the government for defense purposes.

CERTIFICATES OF NECESSITY

Additional certificates of necessity have been issued as of April 12 to:

	Amount	% Certified
St. Regis, Eastport, Fla. ..	$17,638,000	60
St. Paul & Tacoma Lumber Co. for woodchips for pulp	435,000	65
Champion Paper & Fibre Co., Canton, N. C.	4,336,418	65
Chesapeake Corp. of Va., West Point, Va.	934,648	65
Manchester Board & Paper Co., Richmond, Va.	4,000,000	50
Rhinelander Paper Co., Rhinelander, Wis.	1,436,303	50
Columbine Development Co., New Castle, Colo.	15,846,000	65
Hoberg Paper Mills	100,000	65
National Gypsum Co.	476,106	50

PLAN ARROW LAKE MILL

A new pulp mill on the Upper Arrow Lake in British Columbia is reported to be definitely under study by a large American pulp and paper company. Rumors to this effect have been in circulation for some time.

The mill would use the large and almost untouched timber stands around the lakes in this southern interior section, and would produce pulp that would be railed directly to the American market through Nelson and Spokane.

Power for the operation, which would employ several hundred men, would come from the B. C. Power Commission's Whatshan hydro development. It is understood officials have already purchased a small lumber company and are moving ahead with their plans.

A mill on Arrow Lake would probably cost more than $20 million.

NEW MILL FOR NATAL COAST

OTTAWA — The South African Pulp and Paper Industries Ltd. are financing a new mill to be built near the Tugela River, according to report from Johannesburg by Foreign Trade Service, Canadian Government. Authority was given to raise one million pounds (sterling) in debentures from the South African Mutual Life Assurance Society Ltd. The capital of the company is also to be increased.

The output of the company's existing factory at Enstra near Johannesburg is being nearly doubled. The buildings for this expansion are well advanced and the first shipment of a 72-inch specialty machine has been received. The manufacture of a 120-inch machine is proceeding satisfactorily overseas. Before the end of 1952, the company should be able to supply virtually the whole of the Union of South Africa's present requirements of bleached printing and writing papers and certain specialty grades.

MANISTIQUE CHANGES NAME

MANISTIQUE, Mich.—Effective April 2, the name of the Manistique Pulp and Paper Co. was changed to the Mead Corp., Manistique Division.

The name change involves no change in management or operating personnel.

The firm has operated under the name of Manistique Pulp and Paper Co. since the mill was constructed over 30 years ago by the Minneapolis Tribune. The plant is now a completely owned subsidiary of the Mead Corp.

PEOPLE

CLARE N. SISSON, executive vice-president and sales manager of the Mac Sim Bar Paper Co., Otsego, Mich., has been appointed president and general manager of the firm to fill the vacancy left by the death of Charles E. Nelson.

R. H. M. ROBINSON has resigned as chairman of the board of Minnesota & Ontario Paper Co. All the other directors and officers of the company were reelected.

J. A. HENDERSON, of Montreal, Que., has been elected president of the National Council of Professional Engineers of Canada for 1951. He has been with the Canadian International Paper Co. since 1925.

EDWIN W. KALER, vice-president of United Board and Carton Corp., Syracuse, N. Y., has been named to the company's board of directors. ALVER E. PETERSON, secretary-treasurer, has also been named a director.

JOHN M. OLIN, president of Olin Industries, Inc., East Alton, Ill., was elected chairman of the board of directors of the Ecusta Paper Corp. Ecusta is a subsidiary of Olin Industries. JOHN W. HANES was elected president; THOMAS M. WORD, vice-president; N. H. COLLISSON, vice-president; PHILIP C. BROWNELL, vice-president and secretary; R. G. DEYTON, treasurer; and LEE M. BAUER, assistant secretary.

JAMES V. MELTON, sales director of Pollock's Waxed Paper Division, at the request of NPA, has been released by that firm to serve in NPA's Pulp and Paper Section as chief of the Waxed Paper Division. While James Melton is serving in Washington, J. S. LEE, who has been his assistant for several years, will assume his position as acting director of waxed paper sales for Pollock.

WILLIAM T. WEBSTER, vice-president and general manager of its Jacksonville, Fla., mill, has been elected a director of National Container Corp.

EDWARD R. GAY has been named executive vice-president of St. Regis Paper Co. Mr. Gay formerly headed the kraft and multiwall bag operations of the company as well as manufacturing in the printing paper division. The board of directors also announced the following executive appointments:

W. R. ADAMS, a vice-president, was placed in charge of all pulp and paper manufacturing. T. H. COSFORD, a director in charge of Canadian operations, was named a vice-president. Other appointments include: R. P. BUSHMAN, vice-president in charge of automatic filling machines; J. B. EAKIN, vice-president in charge of purchasing; Albert ERNEST, vice-president in charge of Southern timberlands and pulpwood; Willard HAHN, vice-president in charge of multiwall bag manufacturing; C. H. HARTMAN, vice-president in charge of multiwall bag development.

In addition, Gurdon W. WATTLES was named to the executive committee to fill the vacancy created by the death of James H. Allen.

Horace R. LAMB, a member of the executive committee, is general counsel and J. McHENRY JONES has been named southern counsel.

H. F. STEVENS was appointed assistant comptroller.

SULPHUR FROM PETROLEUM

OTTAWA — Canadian sulphur produced from petroleum will soon be supplied to the British Columbia pulp and paper industry for the first time, according to the Powell River Co., and the Shell Oil Co. of Canada. This first Canadian plant to help meet the industry's sulphur shortage from petroleum will be built by Shell Oil Co. of Canada at their Jumping Pound gas field, approximately 30 miles from Calgary, Alberta.

Since Canada is not producing elemental sulphur and Canadian producers as well as American are faced with a 20 percent cut back, this is regarded as most significant.

The $500,000 plant at Jumping Pound will produce initially 10,000 tons of elemental sulphur annually which will help considerably to alleviate the critical shortage in the present supply situation. The decision to build the Jumping Pound sulphur plant followed negotiations with Powell River Co., which acted on behalf of a West Coast pulp and paper group that has been seeking a Canadian source of sulphur for several months.

EXPLORE NEW SULPHUR FIELD

Number one sulphur prospecting permit was recently issued in Alberta by the Mines and Minerals Department to the Bradley Oil Corp., Calgary, for exploration on a 96,000-acre tract in the Tieland-Hondo-Smith area, about 100 miles north of Edmonton. Good indications of large-size sulphur deposits were found in the area.

Sulphur exploration has been stepped up recently because of a shortage in the United States, the main supplier for Canada, which threatens to curtail newsprint production.

NEWFOUNDLAND ATTRACTS GERMAN INTERESTS

OTTAWA — German interests are reportedly considering the possibilities of establishing a cellulose and newsprint plant in the Newfoundland area of Canada. It is understood the I. G. Farben Co. of Germany also is looking into the possibility of setting up a new chemical industry in that area.

PULPWOOD PURCHASING PLANT

EDGEFIELD, S. C.—The International Paper Co. has plans under way for the establishment of a new purchasing plant near Trenton, S. C.

Officials said the plant, to be located on the Southern Railroad, is to purchase pulpwood. It will consist of a warehouse, office, 15-acre storage space, loading crane and equipment necessary to handle pulpwood in all qualities.

K-C BUILDS NEW WAREHOUSE

NIAGARA FALLS, N. Y. — Kimberly-Clark Corp. is starting immediately construction on a new warehouse for use in storing raw material and finished product involved in the manufacture of printing papers and cellulose products. Completion is scheduled by the end of the year.

KRAFT CONTAINERS ADDITION

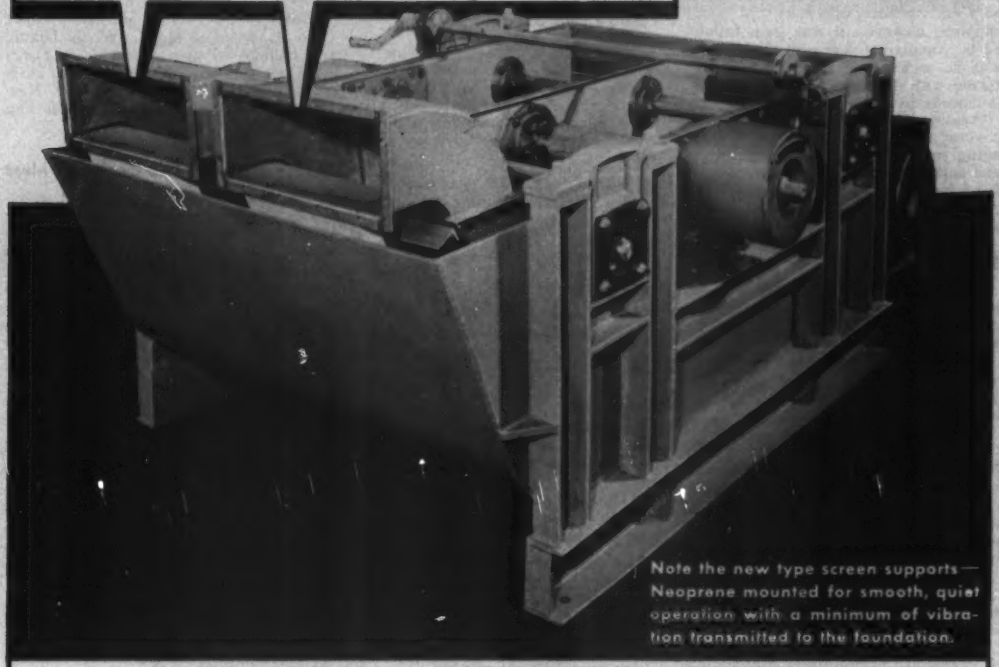
A $450,000 factory and office addition to the plant of Kraft Containers, Ltd., Hamilton, Ont., is planned. Upon completion, it is expected about 100 employes will be added to the company's payroll.

Contract for the two-story addition has been awarded to the W. H. Cooper Construction Co., Ltd.

BROWN MOVES OFFICES

After April 23, Brown Co.'s general sales offices will be located at 150 Causeway street, Boston 14, Mass. A regional sales office will be maintained at 500 Fifth avenue, Suite 925, New York 18, N. Y.

AN ENORMOUS APPETITE FOR HIGH CONSISTENCY PULP



Note the new type screen supports—Neoprene mounted for smooth, quiet operation with a minimum of vibration transmitted to the foundation.

The BIRD JONSSON SCREEN combines intense but precisely controlled vibration with specially shaped screen plates to handle up to 1½% consistency sulphite — 80 to 100 tons of it per day; or 2½% groundwood and sulphate — 150 tons or more.

For fine screening, using slotted plates, Jonsson Screens have extraordinary capacity, too. For example, with .010″ cut screen slots, 0.8 to 1% consistency stock is readily handled, producing 10 to 11 tons per Screen per day.

Why not find out what Jonsson Screens can do for you?

BIRD MACHINE COMPANY

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GOVERNMENT GOSPEL

Removed From MRO Coverage

WASHINGTON, D. C.—Numerous paper products were this week removed from coverage by the MRO order, DO-97, as a means of conserving these and other products for more essential purposes.

DO-97 was issued some weeks ago to enable any applicant to obtain necessary maintenance, operating and repair supplies, however, it was soon followed by complaints that use of the order was so widespread that it was interfering with defense and essential civilian needs in many products.

Among the items removed from its coverage this week by NPA are packaging materials and containers, paper and paper products, paperboard and related items, and many chemicals.

Other changes also are under consideration by NPA, it was stated.

Sulphite Pulp Situation

WASHINGTON, D. C. — The sulphite paper industry is operating at full capacity, manufacturers reported at a meeting with NPA officials.

The latter urged the industry group to review all phases of their operations and prepare recommendations for use by the government in formulating a conservation order if it is needed, although sulphite paper manufacturers have not encountered any material shortage problems, it was said. However, NPA is preparing an order to insure equitable distribution of supplies in event such conservation controls prove necessary.

Additional sulphur supplies are being developed but will require 15 to 18 months to become available, agency officials reported.

The meeting was told that manpower problems are beginning to develop for manufacturers who must rely upon Canadian pulp supplies, but no such difficulty has been reported in pulp manufacture in this country. A request is pending before the Canadian government for authority to import several hundred German workers to relieve Canada's manpower shortage, the committee said.

Severe weather in the Great Lakes area has seriously hampered pulp manufacturers there, it was reported, and some transportation shortages also have been reported. NPA representatives said they would endeavor to clear up any transportation problems through the Office of Defense Transportation.

Although current pulp demands are being met, the meeting was informed, committee members fear problems may develop. Current prices for imported pulp were taken up. Some members suggested as a partial solution, the use of high grade waste paper. However, it was charged that waste paper prices are exorbitant. A representative of the OPS, attending the meeting, said however, his agency is currently studying the waste paper situation and is drafting an order designed to provide some relief.

The meeting heard warnings from committee members that any loss of pulp production or exorbitant prices for imported pulp will undoubtedly mean less paper output.

Possible Pulp Control Measures

WASHINGTON, D.C.—A warning that controls on pulp may be necessary was sounded at a meeting of NPA officials with representatives of the kraft paper manufacturers' industry, called to organize an industry advisory group, this week.

Controls may be necessary, said NPA spokesmen, in view of rising demand for pulp paper and the expected slackening of imports incident to the rise in Scandinavian pulp prices.

Possible control measures discussed at the meeting included a reserve order, under which integrated mills would be obligated to produce and sell for market a certain percentage, suggested at 2 percent, of their pulp production. These could choose their customers.

Other proposals were for mill inventory restrictions, a use limitation order, combined with a percentage restriction on purchasers' consumption, and finally, export quotas, based on past sales records, which would limit pulp shipments from this country.

However, an industry committeeman suggested, in place of the proposed pulp reserve for integrated mills, that M-36, the government paper order, be amended to increase the required reserve, but allow mills the option of either accepting government orders for paper, or selling pulp against this reserve.

NPA representatives indicated they would give this proposal consideration, especially as other industry members appeared to favor the idea, on the ground that it probably would help to equalize distribution without forcing mills into uneconomic production.

Some kraft paper products used in agriculture, such as waterproof barrier papers for use in trench silos, outside grain storage, and as interliners for fertilizer containers, are beginning to show shortages, it was reported, partly due to the metal restrictions which have shifted some demand to paper.

Such requirements, along with normal agricultural demand for kraft paper for packaging food and plant wrapping, are competing with defense orders for paper used in protecting equipment under transportation, and some others.

The government agency appointed an industry group to report on pulp conservation plans, while NPA representatives also warned again that sulphur shortages may be anticipated.

Committee members announced after the meeting include: G. F. Henderson, Brown Co., New York; T. R. Moore, Brown Paper Mill Co., Monroe, La.; W. C. Shorter, Camp Manufacturing Co., Franklin, Va.; W. A. Brown, Crown Zellerbach Corp., New York; H. C. Lawless, Gilman Paper Co., New York; J. W. Warner, Gulf States Paper Co., Tuscaloosa, Ala.; J. B. Cowie, Hollingsworth & Whitney Co., Boston; V. R. Hann, Merrimac Paper Co., Lawrence, Mass.; W. J. Dixon, St. Regis Paper Co., New York; George Stuhr, Southern Kraft Division, International Paper Co., New York; and H. S. Daniels, Union Bag & Paper Corp., New York.

OPS and Wood Pulp Consumers Meet

WASHINGTON, D. C.—Foreign woodpulp prices were taken up at a meeting this week between Office of Price Stabilization officials and representatives of domestic consumers of woodpulp, including those largely using imported woodpulp.

The meeting was featured by a warning from some converter paper mills, largely dependent on imports of woodpulp, that these cannot long continue in operation with prices of their products fixed at home, while woodpulp from abroad continues at its inflated market level.

Even if relief were granted, based on cost of their materials, it was stated, certain non-integrated converters could not continue to successfully compete with integrated or semi-integrated mills or other converter mills mainly using domestic woodpulp.

The meeting was convened by Walter J. Damtoft, assistant director of the Forest Products Division, and marked the first conference of the Woodpulp Consumers Industry Advisory Committee with OPS.

Importance of conservation measures was stressed, especially in the eventuality that foreign woodpulp is diverted from the U. S. market by the high world price. Among such measures suggested were reduction in basic weights of paper; however, the committee said conservation measures would be up to the National Production Authority.

Members of the committee reported present included Hugo H. Hanson, president, W. C. Hamilton & Sons, Miquon, Pa.; Allen F. Horton, president, Curtis Paper Co., Newark, Del.; Aubrey K. Nicholson, president, Hollingsworth & Vose Co., East Walpole, Mass.; W. B. Zimmerman, executive vice-president, Howard Paper Mills, Inc., Urbana, Ohio; Bert H. Cooper, vice-president, Kalamazoo Paper Co., Kalamazoo, Mich.; Peter Freedman, vice-president, American Writing Paper Corp., Holyoke, Mass.; and R. L. Vayo, vice-president, St. Regis Paper Co., New York.

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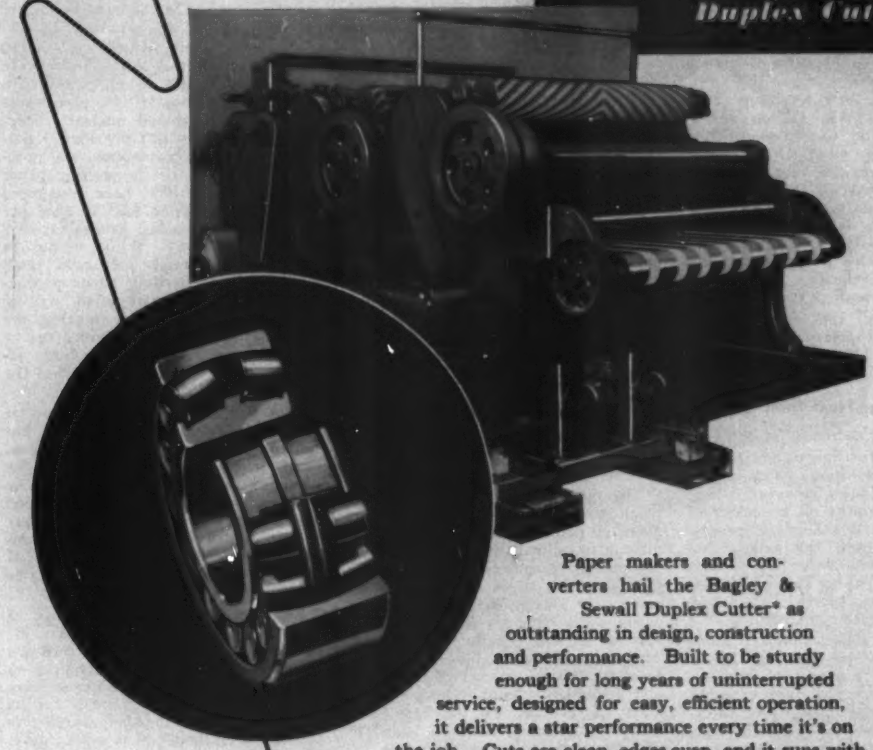
CUT IT CLEANER

with a Bagley & Sewall Duplex Cutter



Paper makers and converters hail the Bagley & Sewall Duplex Cutter* as outstanding in design, construction and performance. Built to be sturdy enough for long years of uninterrupted service, designed for easy, efficient operation, it delivers a star performance every time it's on the job. Cuts are clean, edges even, and it runs with watch-like smoothness. And contributing to such outstanding performance are SKF Spherical Roller Bearings, on the feed roll and cutter. Throughout the paper-making field, designers and builders of equipment have found SKF can always be relied upon to help put the right bearing in the right place. Their example is a good one to follow.

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Outlook for Writing Paper Industry*

Hugo H. Hanson[1]

For nine months now we have witnessed a wild scramble for goods of all kinds. Fear of shortages and higher prices have been the main springs of this buying splurge.

Now we feel some lessening of the tension. World War III on a huge scale with a full war economy does not seem quite as close. Dr. Vannevar Bush says no war this year because of our preponderant supply of Atomic bombs. General Howley says the showdown may come in 1952 after Russia has had time to build up her stock of bombs. The defense program continues at increasing velocity. It will not reach the peak until next year.

What does all this mean for the Writing Paper Industry? First a little background to help us look into the crystal ball.

Factors Affecting Near Term Outlook

(1) General Business

The demand for fine papers follows the demand for consumer goods in general. There has been, however, a time lag of a few months on a number of occasions — that is changes in general business have been followed a few weeks or months later by similar changes in the Writing Paper Industry. All this is to be expected because we are largely a service industry.

The Writing Paper Industry along with the whole Paper and Pulp Industry of which it is a part, has definite peculiarities of its own. For example, the initial cost, the upkeep and, therefore, the overhead is unusually high. In order to make money high production is essential. When a mill loses time, its costs rise rapidly. It must make every effort to keep going, even at the expense of cutting prices. Other costs are inflexible. Paper inventory building by a mill has definite limitations because of the bulkiness of the product. Prices are, therefore, apt to be more sensitive in the Paper Industry. In recent years, however, the industry has been more stable.

The profits in the industry (that is, the mill end of it) have been notoriously low. We've had a bad name in the investment field. However, that too is changing. Today I believe most investors realize that the industry has matured and is stable, with big growth possibilities. In past years, profits were often not enough for adequate replacements, but now, even with the very high replacement costs that we have, the industry is much more able to keep itself up to date and build for the ever increasing demand.

Industrial production has risen to a tremendous volume since last summer. In recent months the durable goods curve has been going up steadily while the non-durable goods curve hit a new all-time high in the first three months of this year. Total production in the first quarter of 1951 was 21 percent higher than the first quarter of 1950. It was 11 percent higher than the average of all of 1950. Consumer demand has supported this high rate of production up to now. We don't know too much about what has happened to inventories, but we do know they have gone up. The Federal Reserve Board publishes figures on general business inventories. The latest figures I have are for January, and they indicate a rise since February 1950 as follows:

Total Mfrs. Inventories	— up 12%	in dollars
Wholesale	— up 20%	"
Retail	— up 23%	"

The figures do not sound too high when we consider that prices are up about 10 percent. But the factor most difficult to estimate and most important is that of consumers inventories. As far as writing paper is concerned, we can safely assume that a great many paper users have bought extra paper fearing shortages and higher prices. The accumulation of writing paper inventory probably started in December, and I think we might guess that at least 10 percent of the last four months shipments, has been added to the inventory over and above the inventories as they existed on July 1, 1950. However, we must remember that inventories last summer were probably, in most cases, subnormal.

Pricing

There have been considerable increases in prices in practically all commodities. Some commodities have risen 150 to 200 percent while others have risen only a few percent. The ones having the highest rise undoubtedly are in the most vulnerable position. Fine papers have risen moderately—about 12 percent for the sulphite grades. The rag content grades have gone higher because of the extreme rise in the cost of rag cuttings, which have more than doubled in price.

A significant fact in regard to price trends of paper is that costs are still rising. Perhaps 20 percent of the pulp used in the Writing Paper Industry comes from foreign sources, uncontrolled, and with unprecedented rises in price coming in this second quarter of 1951.

Canadian mills, which provide 10 percent of all the pulp consumed in the United States in 1950, have announced increases of 10 percent or more for the second quarter. Scandinavian mills, which provided 4 percent of all our consumption, and probably 10 percent of the writing paper requirements in 1950, have announced prices ranging from $225 to $315 per ton dock for bleached grades (up $50 to $125 per ton). While it can be argued that foreign pulp is a small factor in total writing paper production, a large proportion of writing mills, particularly those making the higher grades, use some percentage of imported pulp, so that these large increases in the price of pulp affect the costs of many mills.

You may be interested to know that the Pulp Consumers Association has requested that a ceiling be put on imports from Scandinavia of $225 for bleached pulps and that Canada be asked to go no higher than the second quarter prices just announced. In case it is not understood, I want to point out that the general price order of January 26 does not limit the price on imported pulp.

There is today a world shortage of pulp. Foreign countries who have little or no production of their own are willing to pay apparently any price to get it. In the U.S.A. the shortage may lead to some kind of controls for its use. Limitation of paper weights is probable and allocation is a possibility. The shortage of pulp is not necessarily long lasting. Mills are being built and we may have an exportable surplus in a few years.

In addition to the increases in the cost of pulp, much of the pulp wood used in the Northeast comes from Canada and is uncontrolled, and with prices still rising. We have just had a 4 percent increase in freight rates and no doubt will have another by summer. We can be sure that other costs will rise. Labor will not be satisfied at present rates.

The sulphur shortage may decrease sulphite pulp production, and thereby increase costs in addition to decreasing paper production. This sulphur shortage, by the way, is very serious. Every sulphite mill in the United States and Canada uses sulphur. They have been cut 15 to 20 percent. They have been reducing inventory in order to run full during the first quarter, and perhaps can continue to do so in the second. Unless they get relief by July 1,

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* Presented at the annual meeting of the National Paper Trade Assn., Waldorf-Astoria, New York City, April 2-4, 1951.

[1] President, W. C. Hamilton & Sons, Inc.

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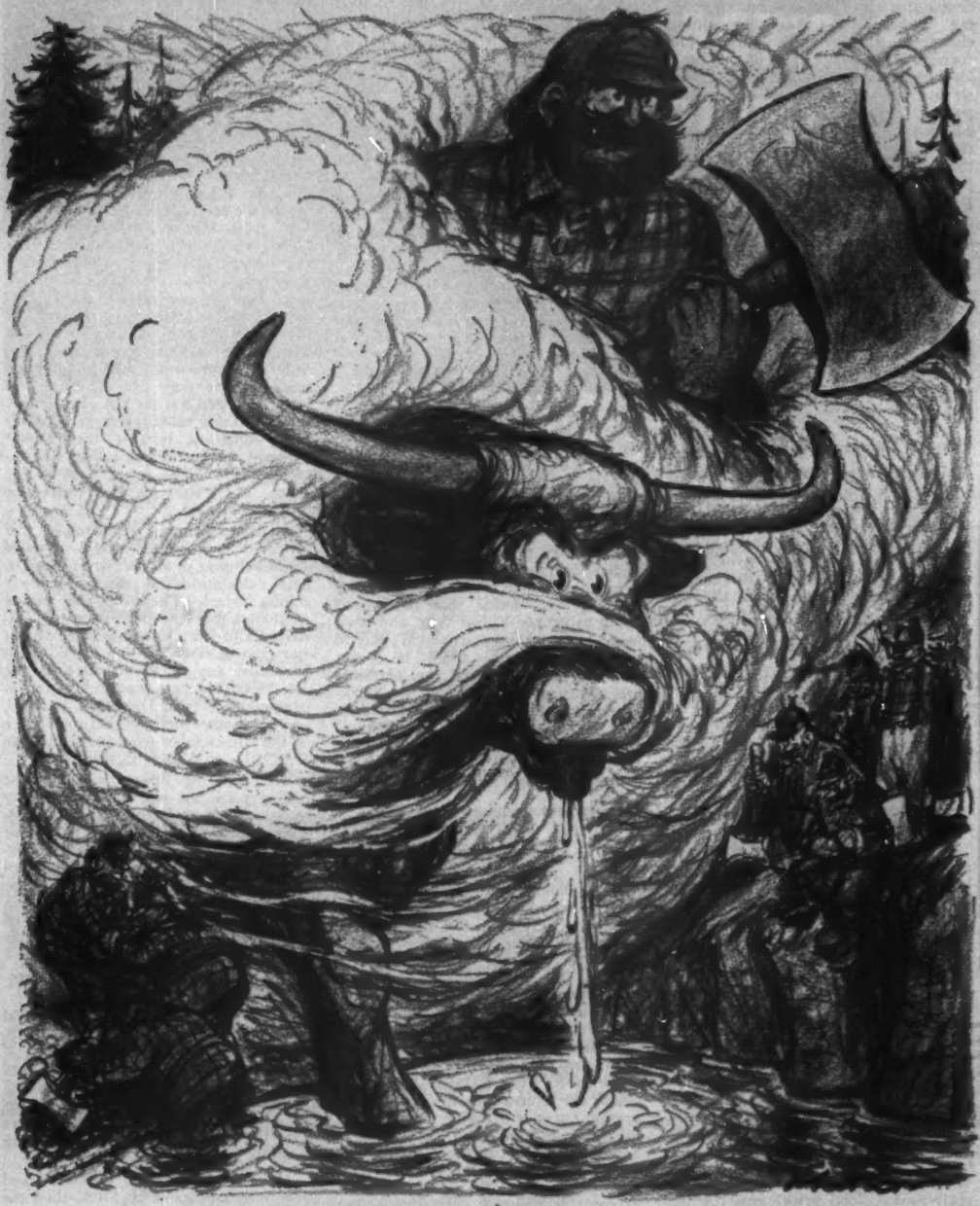

Paul Bunyan's logging operations in Northern Michigan were so hampered by fogs that he ordered Babe the Blue Ox to inhale and condense them—thus filling a great depression now known as Lake Superior.

A reproduction of this incident from the fabulous life of Paul Bunyan—the fifty-seventh of a series—will be sent on request. It will contain no advertising.

they will definitely lose production. Many meetings have been held, but so far no decision has been reached. Our sulphur deposits which have supplied 90 percent of the world's requirements in recent years are being depleted, and demand is increasing because of growing requirements for agricultural chemicals, the chemical industry, and foreign demand supported by our State Department and the ECA. The sulphur we are now using can be replaced by pyrites, and other sources, but new equipment to use the substitute materials is necessary, and this means 12 to 18 months to get ready.

We have therefore, in the Writing Paper Industry perhaps, a unique situation "Price Control with Costs Still Rising"!

Consumer Purchasing Power

It is generally considered that consumer purchasing power is a good index of general business and the paper business. All the indications are that consumer purchasing power will remain at a very high level this year, may even increase.

Effect of Defense Spending

Much of the public buying of goods in the last few months has been caused by fear of shortages, inferior products and higher prices—all induced by the demand for Production for Defense and the change-over from civilian goods to Defense Production, which is now taking place. So far there have been few shortages, but the chances are there will be more by summer. The significant fact here is that our Government is committed to tremendous expenditures for this year and next, and it is difficult to see how industry in general can slacken its rate of production or how purchasing power can fall. This is a strong factor in favor of continued high demand for writing paper.

Adverse Factors

There are many that feel that present inventories are too high—that bank loans are too high. The Government is fighting inflation but not winning many battles. It has been exerting pressure through the Treasury and Federal Reserve on banks to limit loans which are in any way inflationary, such as for inventory and speculative purposes. It has raised the interest on Government bonds. Tax receipts for the first quarter are five billion greater than expenditures, and this has important deflationary implications. The OPS has frozen prices and is under pressure to roll back prices. The weakness of the program is that food prices are not controlled. The Government found during the second World War that to make price control really work, food prices must be tied down first.

These are important moves to halt the inflationary trend and very necessary if the purchasing power of the dollar is to be kept from slipping. Undoubtedly these moves are having and will have some effect on some prices, at least temporarily. It is generally believed, however, that it is not possible to stop price advances entirely, unless labor costs are frozen and food prices controlled, and that is probably not in sight. Labor is by far the biggest factor in the cost of production of goods. For example, take the paper industry—trees growing in the woods aren't worth much comparatively—perhaps $2 to $5 per cord. By the time the wood reaches the pulp mill it is worth $15 to $30 a cord. The cost of labor of cutting, hauling—the labor of transportation, the labor of producing the machinery and the truck or railroad car that carries it, the labor of producing the fuel to operate the means of transportation, and so on, all add up to a very big majority of the increase in value. Therefore, it seems doubtful from the present outlook that costs can be held down and inflation completely stopped.

Psychological Factors

It seems to me that psychological factors can have a considerable bearing on the short term outlook. For example, it is generally believed that if Russia does not attack by August she won't attack this year, and that by next year we shall be so strong she won't dare attack. It is entirely conceivable that in spite of the avowed intention of our Government to prepare for any event, the public will wake up some morning and decide that there isn't going to be any World War, and postpone buying things it would like to have, because prices might be lower, later. If this happens we certainly are going to have a temporary recession. However, it does not seem likely as long as our defense expenditures continue at the tremendous rate planned for 1951 and 1952, that such a recession can be deep or long.

Government Requirements

For the Writing Paper Industry some people feel that the inventory situation, plus hope of lower prices, plus psychological factors can produce a temporary recession this year in spite of a very high rate of industrial production. There is still another factor in the picture, however, which is having, and will for some time have a big influence on writing paper shipments, namely, the factor of Government requirements. The NPA is asking for and will get 15 percent of the production for April and May, and probably for June. The 15 percent includes the tonnage for the D.O. 97's at present but it is probable that the D.O. 97's will be eliminated very soon as far as paper is concerned. The Government needs the whole 15 percent for itself. This "take" by the Government is reducing commercial shipments by the same percentage. Thus the Government may be an important factor in keeping the industry in full production for this year. It certainly does not appear that any slack period could last very long.

The Price Problem

Before closing I think a few words on the new proposed manufacturers' price regulation are in order. This regulation may have a bearing on the operations of the Writing Paper Industry this year. As you very well know, the Office of Price Stabilization froze paper prices on January 26 of this year. That regulation 32-A was issued as a stop-gap with specific price ceilings for all manufactured goods to be set up as soon as possible. Since that time the pressure from Labor and the public to roll back prices has been very great. The Price Administration, understaffed, and perhaps with not too clear a picture of how to attack this tremendous problem of specific price ceilings, and under heavy pressure to do something, is now in the process of bringing out another interim Manufacturers Price Regulation. This order is intended not only to roll back prices where they are considered to have advanced too far but also to give relief to those manufacturers who are being squeezed because they hadn't adjusted their prices to reflect cost increases before the January 26 freeze order. There were no relief provisions in that order.

As first announced on March 16, this proposed regulation would require manufacturers in all industries to make new calculations to determine their calling prices. The new base period would be the second quarter of 1950 (April 1 to June 30—June alone on list announcement). To this would then be added any dollar increase in the direct material cost that took place between June 30 and December 31, 1950, and any dollar increase that took place in the direct labor cost between June 30, 1950, and March 15, 1951.

The resulting figure would be the ceiling price for sale of a commodity to your largest buying class of purchaser, provided, however, that your ceiling price may not exceed 105 percent of your ceiling price for the commodity under the last previously applicable ceiling price regulation (G.C.P.R.) (January 26) or 110 percent of the base period price, whichever is higher.

The following is an illustration provided in the proposed regulation:

"Base period price was $100. Old ceiling (January 26) price was $110. Increase in unit direct cost was $14. $100 plus $14 is $114. $110 increased by 5 percent is $115.50. $100 increased by 10 percent is $110. $114 is higher than $110 but it is not higher than $115.50. Therefore, your new ceiling price is $114."

If new ceiling price was $120 and cost increases came to $108—then the price would be rolled back to $110.

If put into effect as published, the regulation was to become effective April 23, 1951, so that after that date

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it would be unlawful to sell or buy any covered commodity "at a price exceeding the ceiling price" established by the proposed regulation.

It is obvious that this price regulation if issued as first published would roll back most prices and would create hardship on many mills. The base period happens to be adverse to the Paper Industry as a whole because the recession of 1949 was still having a large effect on prices during the second quarter of 1950. Mills using any imported material, either pulp wood or pulp with uncontrolled prices would be particularly hard hit.

Apparently many other industries had similar problems, and when these were explained to OPS the order was held back until revisions could be made. Although the text of the final order is not known it now appears that it will recognize the industry's problems. Discussions between members of the industry and OPS tend to indicate no radical downward revision of price, perhaps even some advances. According to the latest information available the 5 percent and 10 percent ceiling limitations are out. The cut-off date for increases in the cost of raw material may be liberalized, especially as regards importations. All factory cost increases are allowed, and a more flexible base period may be permitted. After sixty to ninety days prices are to be refigured to make allowance for changes in cost, caused by the order in the first place. One fact must be remembered. Congress wrote the law permitting price regulation, and it is stated therein that the percent gain permitted on invested capital shall not be less than that obtained during the base period 1946-1949. As to the effective date of this new price order, it probably will not be before May 15. This new order is another interim order with specific price ceilings for each grade to come later. As you can see the order will surely bring price differences between mills on many grades of paper. You are going to have plenty of problems on your resale prices.

Summing up my own conclusions for the balance of the year, I feel:

(1) That while some temporary letup in demand may occur, this should not last long.

(2) That the production and shipments of writing paper will be higher in 1951 than in 1950.

(3) That since costs are still going up any material reduction in prices is improbable.

The Sulphur Situation

R. M. Fowler
President, Canadian Pulp & Paper Assn.

The existing shortage of sulphur is a serious problem for the pulp and paper mills of Canada. This country imports all its sulphur from the United States; and of the total imports, some 80 percent is used by the pulp and paper mills. Obviously, the curtailment in supplies will have a major impact on the industry as a whole.

Sulphur producers in the United States have already informed our mills of a 15 to 20 percent curtailment in shipments which will be based on their consumption over the twelve months period ending October 1950. During part of this period the pulp and paper industry of Canada operated at below capacity. Since the middle of 1950, the industry has been operating at capacity and is currently operating at a rate substantially above the level of the base period. In addition, substantial increases in capacity have taken place. Thus the sulphur shortage will be considerably greater than any percentage reduction in the supply would indicate.

Meantime, the industry has not been idle and has been actively pursuing alternative sources of sulphur. A number of these are promising, but they will take time to develop, possibly 18 to 24 months. An obvious method of obtaining more sulphur consists in roasting pyrite of which there are many deposits in Canada. But obtaining adequate supplies of sulphur from this source involves obtaining a suitable supply of pyrite, boxcars to move the ore, the necessary roasting equipment, and the priorities for its construction.

Thus in time the sulphur shortage might be met, but a decline in the supply of sulphur to the mills presents a very serious interim problem. Meantime, the mills have no large sulphur inventories. Indeed, the general level of inventories is below normal and the industry is making every effort to conserve its supplies.

By and large, the sulphur situation boils down to the fact that the source of supply is in the United States which consumes 70 percent of all the pulp and paper produced in Canada. Thus reduced shipments of sulphur from the United States to Canada must mean reduced shipments of pulp and paper to the United States. This is the problem facing the National Production Authority in the United States which has to decide whether the economy in that counry is more in need of sulphur or of pulp and paper.

LOWELL TEXTILE PAPER COURSE

An intensive two-week summer course in "Paper — Its Properties and Uses," sponsored by the Boston Paper Trade Assn., will again be given at Lowell Textile Institute, June 11-22, 1951.

Successful last year with an attendance of nineteen men engaged in various branches of the paper and paperboard and allied industries, instructors will again be Dr. G. Broughton, head of the Department of Paper Engineering, and William B. Wheelwright, well-known authority on paper and printing processes. The syllabus, designed to cover the making and properties of paper and paperboard in relation to their end-uses, will be unchanged except for the introduction of some laboratory work under the direction of A. K. Hobbs.

Applications for the course, enrollment in which is strictly limited, should be made to Professor G. Broughton, Lowell Textile Institute, Lowell, Mass., enclosing a prepayment of $10 as a registration fee.

AMERICAN BOX BOARD GIFT

One of the largest contributions given by "smaller" manufacturing firms in the state of the University of Michigan's Phoenix project was pledged recently by the American Box Board Co., Grand Rapids, Mich.

The contribution consisted of stock in American Box Board Co., valued "well in excess of $10,000." and will be presented later this year to Phoenix project officials.

The company is contributing to the project with the definite understanding that the contribution would be earmarked specifically for research in connection with the growth of *aspen* in the northern part of the lower peninsula, toward the end of assuring a continuity of supply for this species of timber.

This contribution is being given in consideration of the eighth of 10 proposed research projects of the Phoenix program, which includes the study of raw material requirements of the pulp and paper industries in Michigan, with special reference to the possibilities of increasing supplies through increased forest production and thorough utilization of species, sizes and grades of wood now regarded as inferior or unusable.

ECA EQUIPMENT FOR AUSTRIA

WASHINGTON, D. C. — ECA has approved a $900,000 machinery and equipment order for the kraft pulp and paper mill at Nettingsdorf, Austria, as part of a project launched under ECA aid recently.

The agency also approved $28,000 for industrial equipment to be added to the Arland Papier-und Zellstoffabriken A.G. at Andritz and Rechberg, Austria.

BUILD NEW LABORATORY

Anderson & Westfall, Portland, Ore., is low bidder for construction of the Crown-Zellerbach laboratory at Camas and has been awarded the contract, according to the central engineering office of the company.

How a MODERN metal cuts costs here

Creping doctor installed on "Mister Nihroc" at the Berlin, N. H. plant of the Brown Co. "K" Monel is one of the doctor blade materials used on this paper towelling machine, one of the newest and largest of its kind. The creping doctor and "K" Monel creping blades were made and furnished by LODDING ENGINEERING CORP., Worcester, Mass.

Wear and corrosion...worst enemies of your doctor blades . . . can be controlled.

The secret of long-lasting, low-maintenance blades lies in using a metal that fits your operating conditions.

"K"* Monel is just such a metal. Consider its unique combination of desirable properties:

- **Non-rusting, highly corrosion-resistant.**
- **Strength and hardness greater than structural steel.**
- **Heat-treatable for maximum properties.**
- **Easy to machine; takes a high polish.**

So much for theory. Now . . . what about practice?

Many of the nation's busiest board and paper mills report outstanding service from "K" Monel doctor blades, in both dry and wet end applications.

"K" Monel blades, operating on modern high-speed paper machines, have given up to *18 times* longer service than blades of other commonly used metals. Less honing and less regrinding are required. Corrosion ceases to be a threat to blade life. Maintenance costs drop sharply.

Right now, diversion to America's defense program has limited the supply of "K" Monel for civilian use.

Ask your nearest source of supply about the current availability of "K" Monel, or for more detailed technical information.

* Reg. U. S. Pat. Off.

THE INTERNATIONAL NICKEL COMPANY, INC.
67 Wall Street, New York 5, N. Y.

EMBLEM OF SERVICE INCO

"K"*MONEL...FOR MINIMUM MAINTENANCE

Johns-Manville's Wallboard Mill at Natchez

E. P. McGinn[1]

The production of building board is a comparatively new branch of the pulp and paper industry but it has enjoyed unusually rapid growth since its beginning in 1914. The first board was of the low density or insulating type and was produced by the Insulite Division, of the Minnesota and Ontario Paper Co., at International Falls, Minn., in 1914. In 1921 The Celotex Co. began making insulating board from bagasse fiber at Marrero, La.

During the period 1921 to 1934, the number of companies manufacturing insulating board, increased from 2 to 13 and the annual production increased from 600,000 square feet to 1¼ billion square feet.

In 1922 Mason invented the method of producing hardboard by subjecting wood chips to extremely high pressure steam, at temperatures above the softening point of lignin and suddenly releasing the pressure, or *exploding* the chips into fibers. While still hot, the fibers are pressed into hardboard. A mill was established at Laurel, Miss., in 1926 to produce Masonite hardboard.

In 1936, insulating board mills began making sheathing board, 25/32 inch thick. This board could be used to replace wood siding without the necessity for special windows and door frames. At the same time the method of waterproofing board with finely divided asphalt or tar dispersed throughout the fibers, was introduced. Asphalt coating of sides and edges was also started at this time. All of these improvements allowed insulating board to be used in places where it was exposed to dampness and regular board could not be used.

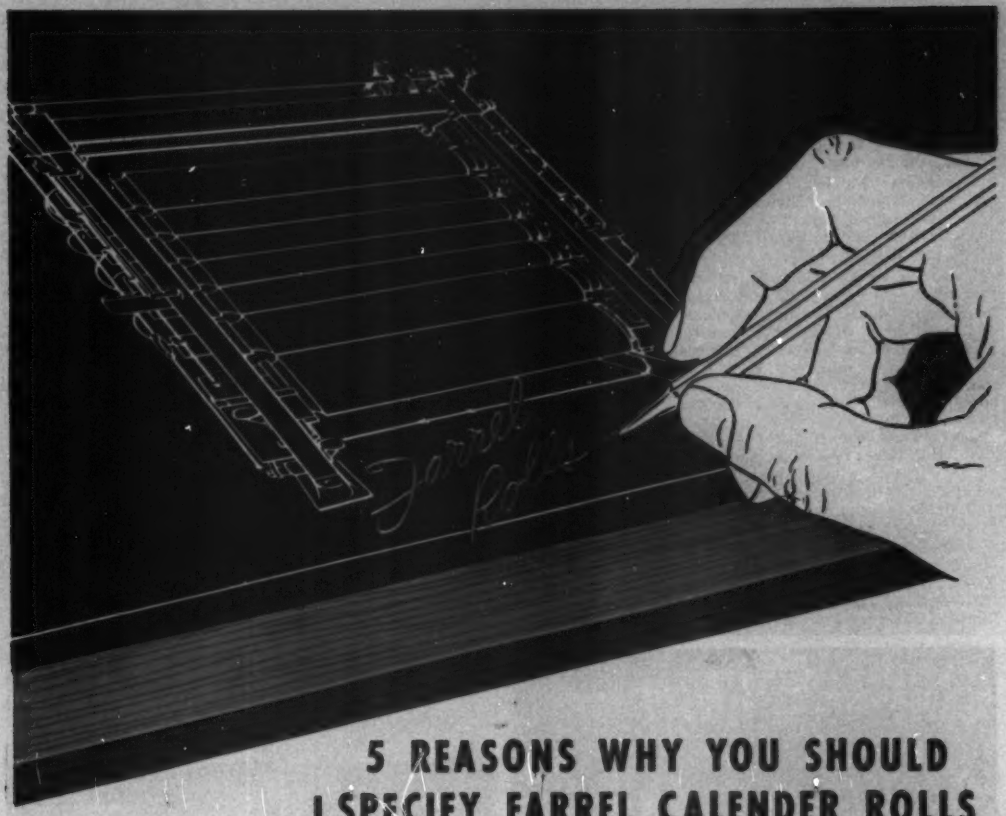
The Johns-Manville Co. entered the insulating board business in 1928 as sales agent for the Oswego Board Corp., Oswego, N. Y., a subsidiary of The St. Regis Paper Co.

In 1934 J-M took over the operation of the Oswego mill on a five year lease and in 1938 started to build a new mill at Jarratt, Va. The new mill went into operation in July 1939 at the same time the Oswego plant was closed down.

Construction of the J-M mill at Natchez, Miss., was started in 1946 and finished in April 1948. This mill is similar in many respects to the one at Jarratt, the principal difference being that the Natchez plant has both groundwood and semi-chemical pulp preparation equipment whereas the Jarratt plant pulp preparation is 100 percent groundwood.

Natchez is the second oldest city in

[1] Industrial Editor, Paper Trade Journal.



5 REASONS WHY YOU SHOULD SPECIFY FARREL CALENDER ROLLS

1. **MAXIMUM SERVICE LIFE**—In every Farrel roll the thickness of chill and gray iron body are combined in correct proportion to provide maximum service. The chill is sufficiently deep to resist crushing and abrasion; the gray iron body gives adequate strength to carry the load.

2. **EXTREME ACCURACY**—All rolls are produced to extremely close tolerances. Because of the hardness of the roll surface, this original accuracy is maintained over a long period of time.

3. **CORRECT CROWN**—Crowned rolls are made with a precisely graduated crown, exactly symmetrical on both halves of the roll. This assures correct compensation for loading and weight of rolls in the stack.

4. **RIGID INSPECTION**—Before Farrel calender rolls can pass inspection they must be stacked and "light-tested." To pass this test the rolls must be ground practically to perfection, as a beam of light will disclose the most minute opening between the rolls.

5. **EXPERIENCE AND FACILITIES**—During the last century, Farrel has accumulated the experience and facilities to design and manufacture rolls to meet your needs exactly. The *world's largest specialty roll shop* is equipped to produce rolls in sizes up to 72" diameter, 312" face.

For more about these five reasons for specifying Farrel rolls, send for a copy of Bulletin No. 116. No cost or obligation.

FARREL-BIRMINGHAM COMPANY, INC., ANSONIA, CONN.

Plants: Ansonia and Derby, Conn., Buffalo, N. Y. *Sales Offices:* Ansonia, Buffalo, New York, Akron, Chicago, Los Angeles, Houston

Farrel-Birmingham®

FB-458

the United States, being next in age to St. Augustine, Fla. From 1714 to 1763 it was held by France, from 1764 to 1780 by England, from 1780 to 1798 by Spain. In 1798 the first United States flag in the lower Mississippi valley was raised over Natchez. From 1861 to 1865, the Confederate flag floated over the city.

The name "Natchez" comes from the sunworshipping Natchez Indian Tribe, the original owners of the area. The city is situated on a bluff, 200 feet above the Mississippi River.

Natchez "Under the Hill" is that part of the city along the waterfront beneath the bluffs. During the middle and latter parts of the 19th century, when the Mississippi River Steamboats were the most important means of transportation, Natchez was a very busy city and "Under the Hill" was the liveliest part of town.

There are about 50 historical mansions, in Natchez and in the surrounding countryside, which have been kept up by the Pilgrimage and Garden Clubs of Natchez. During the Spring months of each year these clubs sponsor a pilgrimage for visitors from all over the country at which time the mansions are opened for inspection.

During its long history the population of Natchez has grown and receded with the changes of time. In 1930 the population was about 13,000 and in 1940 slightly over 15,000. However, with the oil boom and with the Johns-Manville plant coming to Natchez in 1948 and the pulp mill of the International Paper Co. in 1950, the population has now increased to over 20,000.

Transportation Facilities

Although Natchez has no railroad passenger service, it has freight connections with four railroads which include the Illinois Central, Mississippi Central, Missouri Pacific and Natchez and Southern. The plant siding connects directly with the Mississippi Central from which connections are made to the other roads for shipment to all parts of the United States.

Natchez is not now a Mississippi River Port but it is hoped that port facilities will soon be provided, making it possible to receive raw materials and ship the finished board by river boat.

There is also an excellent network of highways radiating in all directions from Natchez, allowing the use of trucks for shipping to and from the plant.

Production

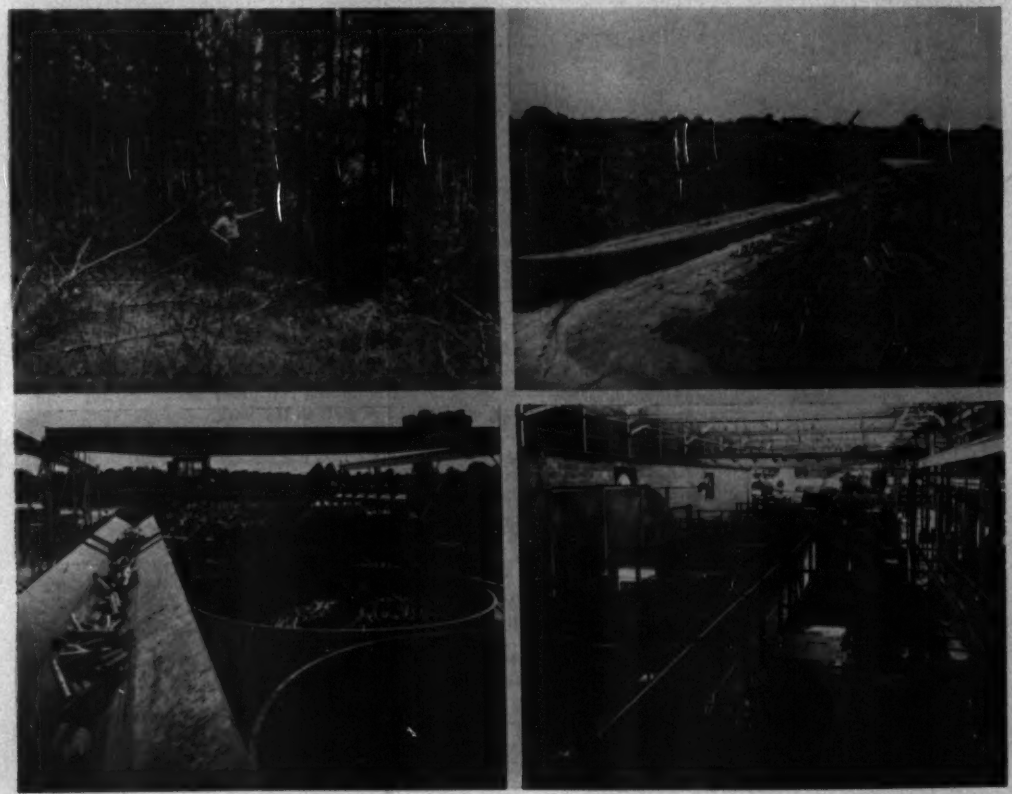
The Natchez plant produces insulating board in thicknesses of 3/8", 1/2" and 3/4 inches and Weathertite sheathing in thicknesses of 1/2" and 25/32 inches. The Weathertite sheathing contains finely divided particles of bitumen to make it water-resistant.

Insulating board is produced in both coated and uncoated grades. Total production is approximately 200 million square feet per year which is made from a daily production of approximately 180 tons of pine groundwood and 120 tons of semi-chemical hardwood pulp.

Personnel

The Natchez plant is under the supervision of A. B. Marchant, Plant Manager, and the following supervisory personnel—R. I. Kerkhoff, Plant Engineer; T. J. Reed, Industrial Rela-

Upper Left—A Typical Stand of Pine in Johns-Manville Woodlands near Natchez. Upper Right—View of Two Wood Storage Areas with Crawler Crane and Conveyor in Center. Lower Left—Soaking Tanks and Incoming Conveyor at Right; Outgoing Conveyor at Left; Shaw-Box Crane at Top. Lower Right—Four Great Northern Grinders receive the 30-inch Pine Pulpwood from Conveyor at Left.



There are three solid selling reasons why color does more for your boxes... than just make them more attractive.

1. Boxes in color give your customers a *low-cost way to distinguish their line to the retailer* ... to enhance their prestige with an eye-catching package.
2. Boxes in color help establish a "family resemblance" among your customer's products.
3. Attractive colorful containers can double as a distinctive base for displays.

These sales-extras add up to more business at a better price for your boxes. New developments made in dyeing methods make coloring practical and economical. Consult our Technical Staff for complete information on these new dyeing methods for boxboard, corrugated board and chip board — or for help on any coloring problem. E. I. du Pont de Nemours & Co. (Inc.), Dyestuffs Div., Wilmington 98, Del.

MORE COLOR MAKES MORE BUSINESS
... FOR YOUR CUSTOMERS AND YOU

FOR MAXIMUM ECONOMY
Du Pont basic dyes

FOR MAXIMUM SOLUBILITY
Du Pont acid dyes

FOR ECONOMY AND LIGHT FASTNESS
Du Pont dispersed organic pigments:
Monastral® Fast Blue BWD or BFP Paste
Monastral® Fast Green or GFP Paste
Lithosol® Pigments
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DU PONT
BETTER THINGS FOR BETTER LIVING ... THROUGH CHEMISTRY

tions Manager; W. H. Graham, Quality Control Supervisor; E. J. Edwards, Industrial Engineering Supervisor; C. S. Smith, Purchasing Agent; R. Cuendit, Traffic Manager; J. W. Thompson, Chief Forester; J. F. Schmidt, Office Manager, R. L. Bullock, Production Superintendent Board Manufacture; S. T. Purty, Superintendent Finishing and Scheduling.

Buildings

The operating buildings in the plant are of steel construction with concrete floors and corrugated Transite walls and roofs. To obtain the greatest amount of natural lighting the buildings have saw tooth roof lines. The total area under roof at the plant is 328,000 square feet.

Forestry Operations

Johns-Manville now owns more than 52,000 acres of woodlands centered around Bude, Miss., about 40 miles east of Natchez. These lands are stocked with approximately 334,000 cords of pulpwood and 32 million board feet of sawtimber. The mature sawtimber is being sold for lumber. Pulpwood constitutes about 78 percent of the present growing stock. Pulpwood growth now totals about 20,000 cords per year and with the present plan of forestry management is expected that this rate will increase to more than 30,000 cords per year by 1965.

A. B. MARCHANT
Plant Manager

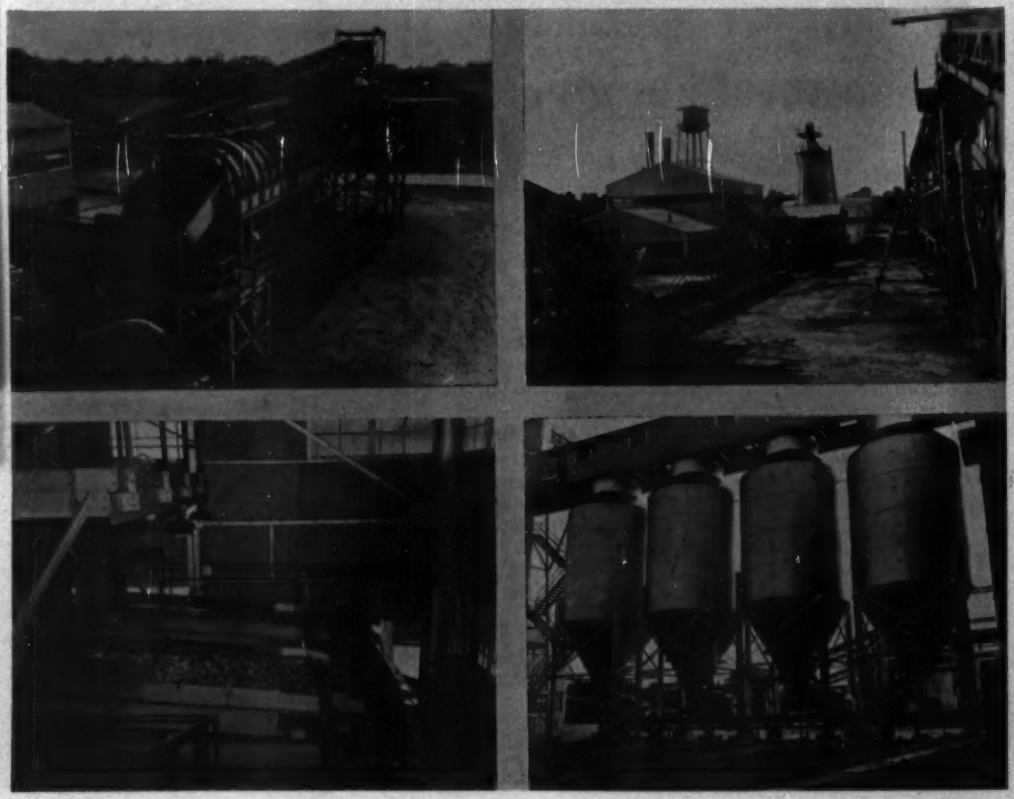
Current pulpwood requirements are 45,000 cords of pine and 25,000 cords of hardwood per year.

A comprehensive fire protection program was started by Johns-Manville shortly after the purchase of the woodlands for the Natchez plant and as a result fire losses have been greatly reduced and are now averaging less than ½ percent per year. About 10,000 acres of land contain young pine suppressed by a hardwood overstory. On about 5,000 acres of this type of land, the hardwoods have been killed by girdling, or poisoning with ammate, at a cost of approximately $4.00 per acre. More than 400 acres were planted to pine this year and it is planned to plant 500 acres next year.

The woodlands are managed on a 40 year rotation. This means that there will be 2 or 3 thinning cuts with a final cut at 40 years. With a 40 year rotation, the final crop will be mostly sawtimber. However, should a shortage of pulpwood develop, the rotation cycle could be reduced with the final crop being cut for pulp.

At present the only pulpwood used from company lands is from thinnings, and salvage operations. The plant is

Upper Left—Pulpwood Storage, Conveyors and Carthage Barking Drum. Upper Right—Boiler House Left Rear; Bark Conveyor Left Center; Pine Pulpwood Conveyor Extreme Right. Lower Left—Rotex Chip Screens. Lower Right—Jeffrey Chip Bins with Vibrating Feeders at Bottom.



YOUR PLANT CAN'T AFFORD A FIRE!

- **43 per cent of the firms whose plants are severely damaged by fire do not resume operation**
- **another 28 per cent quit within three years**

Consider these startling figures:

Within three years, over 70 per cent of the firms that have been severely damaged by fire close their doors for good. Sometimes it's the resulting financial loss . . . other times employees leave or customers don't return. Whatever the reason is, it probably could have been avoided by adequate fire protection.

Why take a chance with your plant?

Like many progressive companies, a large Pennsylvania paper box manufacturer realized these terrible consequences of fire . . . and then took preventive steps. They installed an automatic sprinkler system some years ago, and recently erected the Horton elevated water tank shown at the right. This combination assures 'round-the-clock protection . . . an important consideration during those dangerous early morning hours.

Similar Horton tanks are in service at hundreds of plants throughout the country. They provide an independent water supply for fire protection, general plant service, or unforeseen emergencies. Their efficient operation is guaranteed by gravity pressure.

Horton elevated water tanks with ellipsoidal bottoms are built in standard capacities ranging from 15,000 to 500,000 gallons. Welded construction means many years of trouble-free service.

Write our nearest office today for information or quotations. When requesting prices, state capacity, height to bottom and location.

CHICAGO BRIDGE & IRON COMPANY

Atlanta, 3.....2142 Healey Building
Birmingham, 1.....1529 North 25th Street
Boston, 10.....1964-201 Devonshire Street
Chicago, 4.....2120 McCormick Building
Cleveland, 15.....2255 Guildhall Building
Detroit, 26.....1848 Lafayette Building
Houston, 2.....2163 National Standard Building
Los Angeles 17...1561 General Petroleum Building
New York 6.....3333-165 Broadway Building
Philadelphia, 3...1668-1700 Walnut Street Building
Salt Lake City, 4.....847 West 17th South Street
San Francisco, 4.....1577-289 Bush Street
Seattle, 1.....1368 Henry Building
Tulsa, 3.....1444 Hunt Building
Washington 5, D. C.....1165 Cafritz Building

Plants in BIRMINGHAM, CHICAGO, SALT LAKE CITY, and GREENVILLE

In Canada: HORTON STEEL WORKS, Limited, PORT ERIE, ONT.

supplied with pulpwood by dealers and from independent farmers or from the Homochitto National Forest, which contains 186,000 acres of woodlands located southeast of Natchez.

Eighty-five percent of the pulpwood now used at the plant is brought in by rail. Five dealers located at strategic points handle this wood. One other dealer, located at the center of a trucking area, handles all of the trucking operations as well as wood from independent farmers. All the wood brought to the mill is in 5¼ foot lengths. The wood is stored in one of three woodyard storage areas which have a total capacity of 10,500 cords of pine and 3,000 cords of hardwood.

Wood is reclaimed from the storage yards by means of a crawler crane equipped with a 60 foot boom and an Owens Grapple. The wood is loaded from the storage areas onto chain conveyors which carry it either to a drum barker or to a chipper.

Carthage Chipper with Direct Connected Westinghouse Motor.

Groundwood Mill

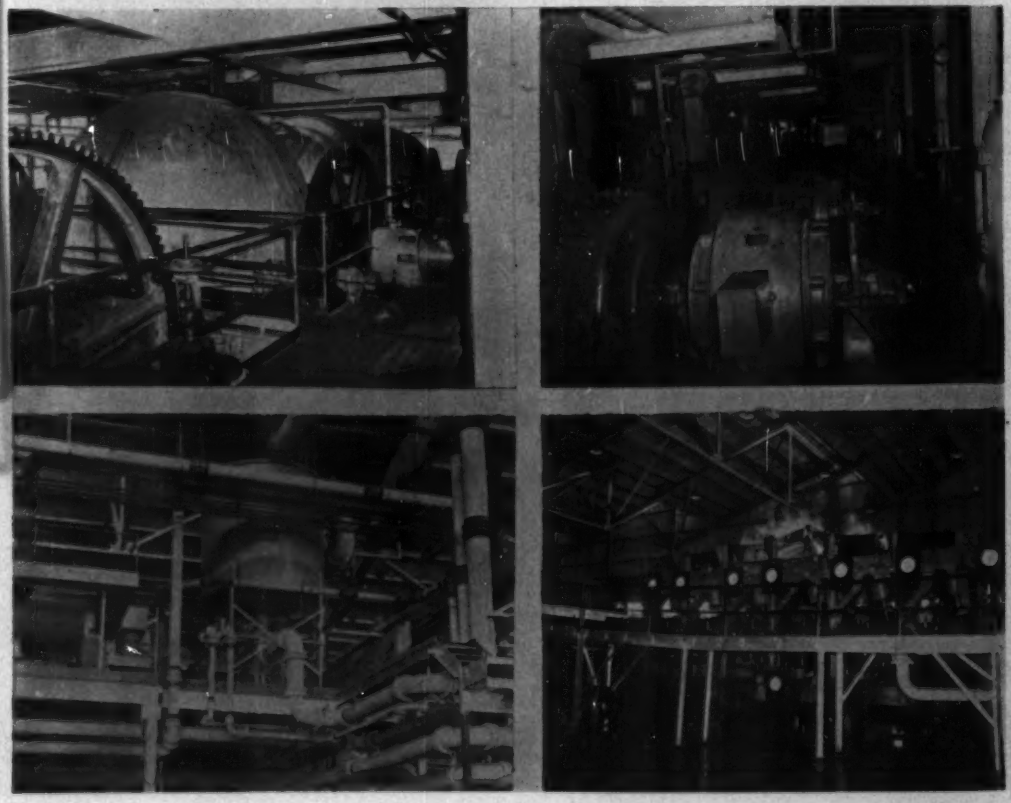
The pine pulpwood is conveyed to a drum barker which is 40 feet long supported by four steel trunnions and driven by a 125 horsepower motor.

After the wood passes through the barking drum it drops to a chain conveyor which carries it to the slasher saw where each five foot stick is cut into two 31-inch pieces. The shorter wood is then conveyed to one of three soaking tanks, each of which has a capacity of 180 cords.

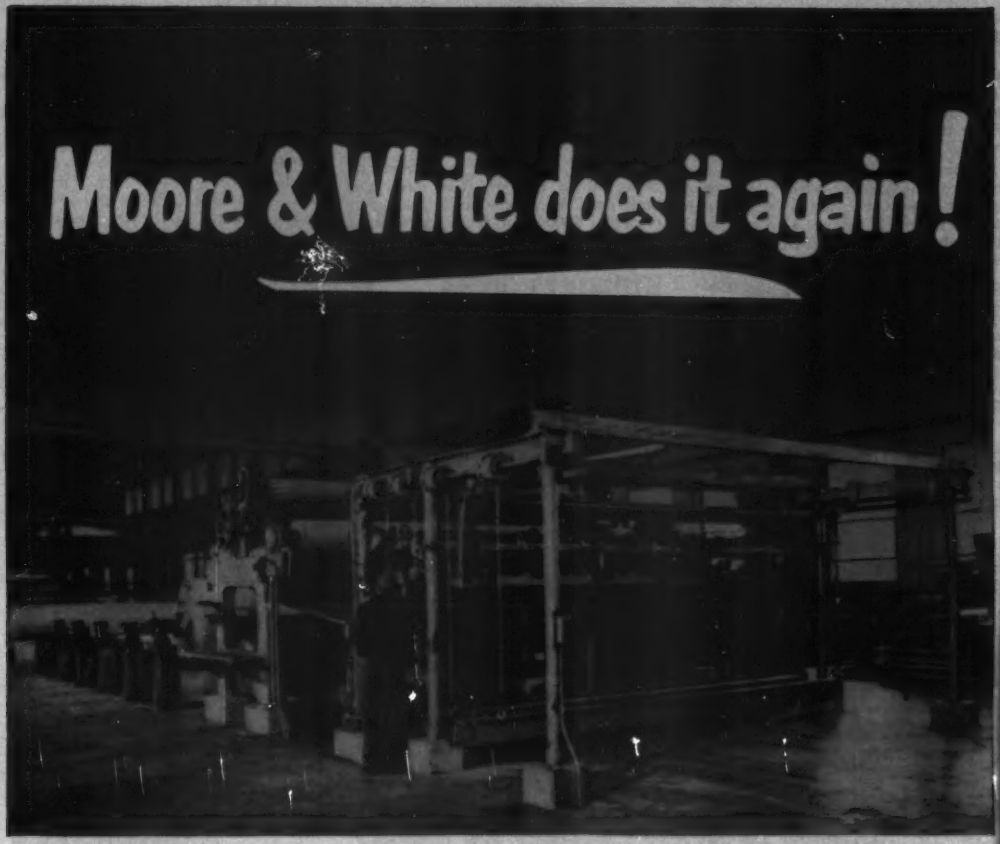
The wood is soaked in a dilute caustic solution, and operations are so scheduled that one tank is being filled while the wood is soaking in one tank, and the third tank is being unloaded. Wood is removed from the tanks by means of an overhead travelling crane equipped with an orange peel grapple. The crane has a span of 50 feet and travels the entire length of the three soaking tanks.

The wood removed from the soaking tanks is conveyed to the grinder room and here ground on four Great Northern grinders, each having a stone diameter of 54 inches designed to take 32 inch long wood. Synthetic grinding stones are used, and the grinders in

Upper Left—Battery of Four Globe Rotary Digesters Built by Biggs Boiler Works. Upper Right—Battery of Seven Bauer Refiners. Lower Left—Stock Preparation Room Mezzanine showing the Large Amount of Transite Pipe. Lower Right—Downingtown Press Section of Board Machine.



Moore & White does it again!



All's well that ends well—as this installation in the plant of one of America's biggest paper makers definitely does. This installation is a heavy-duty, 150-ton-per-day assembly of custom-built Moore & White backstand, cutter, and layboy.

The backstand handles six 196-inch rolls of 60-inch diameter, which are fed direct from the machine reel. Tension control is by air-actuated friction brakes.

The special heavy-duty Moore & White single cutter is equipped with a 198-inch cutter knife and nine pairs of ball bearing, quick-change top and bottom shear-cut slitters. It is built for accurate cutting lengths of from 24 inches to 96 inches.

The specially designed Moore & White Single Layboy will handle eight piles up to a height of 52 inches, and will accommodate all sheet lengths coming from the cutter. Layboy and slitters are synchronized with the main cutter drive.

We are particularly proud of this and other recent installations, which clearly demonstrate the resourceful pioneering of Moore & White engineers. If you use machinery of this type, don't hesitate to call upon us for literature, photographs, and a survey of your problems by one of our engineers.

The MOORE & WHITE Company

15TH STREET AND LEHIGH AVENUE · PHILADELPHIA 32, PA.

CUSTOM-BUILT MACHINES FOR MAKERS OF PAPER AND PAPERBOARD

Represented on the West Coast by Dan E. Charles Agency, 618 Jones Building, 1331 Third Avenue, Seattle 1, Wash.

sets of two are powered by 3000 horsepower motors.

Groundwood stock passes through three knotters arranged in parallel. The accepted stock then passes to four centrifugal screens. Accepted stock from these screens goes to the thickeners.

Groundwood knotter rejects are sent to the semi-chemical system to be used with the hardwood chips. Groundwood primary screen rejects are processed through a Refiner and then rescreened with the semi-chemical pulp.

Semi-Chemical Operations

Hardwood used for the semi-chemical process consists chiefly of gum, magnolia, bay, tulip, poplar, maple and cottonwood. Some oak and hickory is used but it is undesirable, as it is much harder to pulp than the other species.

The five-foot hardwood sticks, with the bark on, are loaded from the storage areas to a chain conveyor which conveys the wood directly to a 10 knife chipper powered by a 600 horsepower motor.

Chips from the chipper are carried by a belt conveyor to screens where the oversize chips are removed and returned to a rechipper for further processing. Sawdust and fines are collected at the screen operation and later combined with bark and burned in the bark burner.

Accepted chips from the screen are conveyed to one of four steel chip bins, each or which has a usable capacity of 9000 cubic feet. As required, chips are removed from the chip storage bin and conveyed to rotary digesters.

Each of the four globe type digesters, are 14 feet in diameter and hold 6 cords of chips.

The chips are cooked for about four hours with a neutral sulphite solution under steam pressure. At the completion of the cooking cycle the chips are dumped from the rotary digester into a pit where the liquor is allowed to drain. As required, the processed chips are conveyed to Bauer refiners for further processing. Pulp from the Bauer refiners drops directly into a large storage chest from where it is pumped to centrifugal screens. Rejects from these screens pass to a plate flat tailing screen and the accepted stock goes to a pair of vacuum washers. There are three vacuum washer units that serve for both groundwood and semi-chemical pulp. These washers are 8 foot in diameter and two of the washers have a 16 foot face. The third a 12 foot face. There are also two small deckers, each four foot in diameter with an 8-foot face.

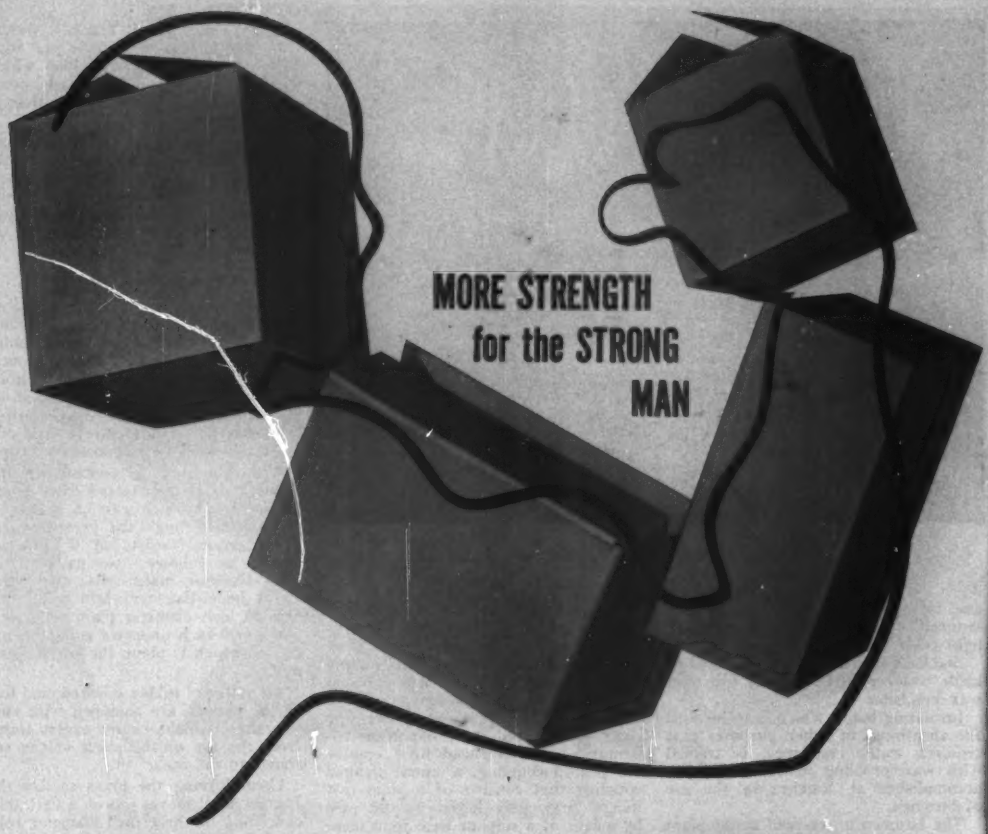
From the washers the thickened semi-chemical stock or thickened groundwood stock flows into separate storage chests.

Stock Preparation

For the most part the stock lines and white water piping are of Johns-Manville Class 150 Transite pipe.

There are seven large stock chests. Each equipped with midfeathers and propellor type agitators. These chests have a capacity of 140 tons of stock at 4 percent consistency. Two of these chests are used for reclaimed broke,

Upper Left—General View of Wet End of Board Forming Machine. Upper Right—Oliver Forming Cylinder in Center, Control Panel at Left; Headboxes and Stock Regulators at Upper Right. Lower Left—Board from Press Section is Carried Forward on Live Rolls to the Travelling Knife which Cuts it into Sheets; Loading Tipple at Upper Left. Lower Right—At left, Loading Section of Dryer which Received Board Sheets from Tipple; other Dryer Sections may be Seen Receding in Right Center Background.



The corrugated box, already the strong man of commerce, is made even stronger when Monsanto Santosite (sodium sulfite) is used in the semichemical pulping of materials that go into his tough hide and sinews.

Santosite delivers a lighter-colored pulp while increasing the yield. Pulp made with Santosite has a longer, stronger fiber because it is not subjected to severe cooking. With Santosite, mills need less shutdown time for cleaning up because of less liming of felts and screens.

Due to industry's great acceptance of Santosite for semichemical pulping and other usage, the product now is in short supply. If, as a possibility for sometime in the future, you are interested in the semichemical pulping of straw and other agricultural residues, write for information. MONSANTO CHEMICAL COMPANY, Organic Chemicals Division, 1700 South Second Street, St. Louis 4, Missouri.

Santosite Reg. U.S. Pat. Off.

EASY-TO-USE SANTOSITE is poured from the bag into the digestor. Santosite is clean... nontoxic and nonirritating.

DISTRICT SALES OFFICES: Birmingham, Boston, Charlotte, Chicago, Cincinnati, Cleveland, Detroit, Houston, Los Angeles, New York, Philadelphia, Portland, Ore., San Francisco, Seattle. In Canada, Monsanto (Canada) Ltd., Montreal.

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CHEMICALS · PLASTICS

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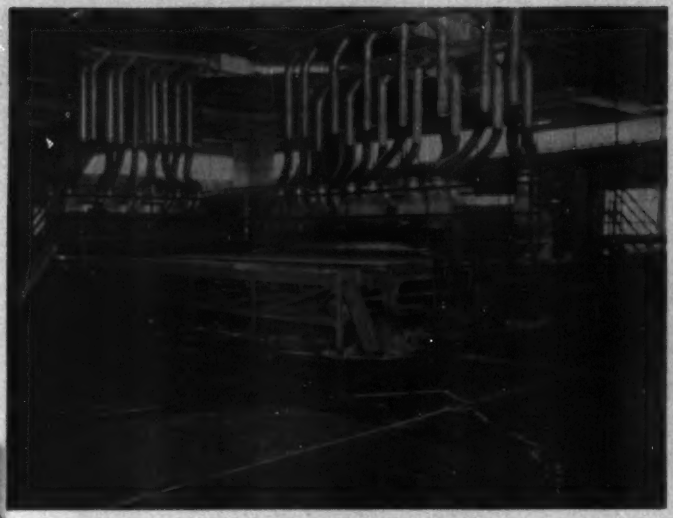

Merson-Johnson Edger-Trimmer-Slitter Saws.

one for the black broke (containing bitumen) and one for the standard light color broke.

Standard insulating board is sized or made water resistent by the use of a wax emulsion.

Insulating board which is to be used for sheathing, or other purposes that requires water resistance, is treated with waterproofing material. This is accomplished at Natchez by the use of bitumen.

The bitumen is received at the plant in granular form in hopper bottom cars and is stored in large steel overhead storage tanks. For use, the material is ground and added to the stock as required.

Transite Pipe Installations

It is estimated that over 7,000 feet of J-M Transite asbestos-cement pressure pipe have been installed overhead for water and stock lines in the Natchez Plant. The selection of Transite pipe was based on data from previous installations including many pulp and paper mills where unusual corrosion resistance, safeguard of water cleanliness, reduced pumping costs, etc., proved to be important advantages. All overhead lines employ the poured coupling, a simple flanged coupling that consists of a plain cast flange, previously keyed to the pipe by means of a sulphur base joint compound.

In addition to these overhead stock and white water lines within the plant proper, there were over 5,000 feet of Transite pressure pipe installed underground which supplies fresh water for plant consumption. An additional 5,000 feet of Transite pressure pipe has been installed for fire lines operating at a pressure of 150 psi.

Completing the all-Transite system is a five and a half mile, 12 inch Transite pressure sewer line which winds its way over hills and across creeks and valleys to the Mississippi River.

Pipe sizes range from 4 inch through 16 inch. Pressures vary from 30 psi to about 100 psi within the plant, averaging about 80 psi, though in one line the pressure goes as high as 150 psi. The underground lines operate at about 60 psi.

Board Mill

Actual board manufacture begins on the Oliver vacuum forming cylinder which is 13½ feet wide. The cylinder vat is equipped with eight horizontal agitators to maintain uniform stock suspension. The peripheral speed of the cylinder may be varied as required to permit the manufacture of the different thicknesses and kind of board.

After the sheet is couched off the cylinder, it is transferred to a Fourdrinier wire which carries it like a press felt, through the press section. This section consists of 6 pairs of presses as follows: two pairs of 20 inch diameter plain rolls; two pairs of 24 inch diameter plain rolls; one pair 30 inch diameter plain rolls; one pair of 30 inch diameter rolls, the top roll of which is plain, the bottom suction.

All rolls are rubber covered, and five of the presses are equipped with suction slices which remove excess water from the top of the sheet at the entrance to the nip.

Upon leaving the press section the formed sheet moves out on a flat table, consisting of three inch diameter rolls on four inch centers, where it is cut into sheets of the proper length, usually about 24 feet plus a few inches allowance for shrinkage and trim. The cut is made with a revolving cutter wheel that travels across the sheet at an angle, the speed of travel being synchronized with that of the sheet so that a straight 90 degree angle cut is made.

At Left—John Waldron Board Cutter. At Right—Waldron Coater with J. O. Ross Dryer.

...USE PLASKON AMINOPLAST

THE SENSATIONAL *NEW* WET-STRENGTHENING RESIN

PLASKON AMINOPLAST gives paper high wet-strength... excellent absorbency... may be used without alum...offers savings up to 30%.

Aminoplast is the new wet-strengthening resin recently developed by Plaskon. On an equal weight basis with urea resins Aminoplast gives a higher wet-strength. It is easily mixed . . . just add water and the solution is ready to use. And no acid is needed to secure stability in an Aminoplast solution. The mixed solution may be used immediately or permitted to stand three or four days without any change in characteristics.

Only a 1% Aminoplast solution gives paper stock wet-strength equal to 25-30% of the dry-strength. Aminoplast can be added anywhere after the refining operation. It gives rapid development in wet strengthening . . . can make savings of 5% to 30% possible.

For wet-strengthening paper stock, toweling, diaper stock, wax paper, twisting tissues and glassine at less cost, use Plaskon Aminoplast. Let us prove to you in your mill the many advantages offered by this newly developed resin. One of our representatives will be glad to arrange a trial run in your plant at your convenience.

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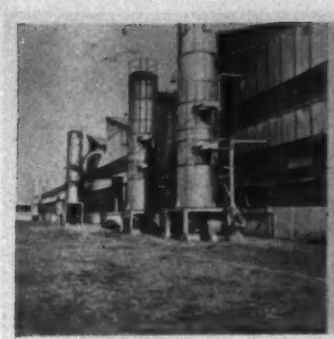
Also manufacturers of weatherproof boxboard adhesives, tub-sizing resins, abrasive binders, resin adhesives and ink-formulating resins

PLASKON.



At Left—Side of Finishing Building Showing Sawdust Collectors. At Right—Chicago Bridge & Iron Co. 100,000 Gallon Elevated Water Tank.

As soon as the cut is completed the sheet is picked up by fast moving live rolls which carry it forward out of the way of the sheet behind it. The rolls carry the sheet rapidly up to the tipple from which it is sent into one of the eight decks of dryer. After each sheet is sent into the dryer, the tipple moves to the next lower deck so that each succeeding sheet is placed in the next succeeding deck of the dryer. After the tipple has sent a sheet into the bottom deck it automatically rises to the top and begins the job over again. The eight deck continuous dryer is one of the largest in existence and is almost 600 feet long.

The dryer consists of eight sections: one loading section; five drying sections; one cooling section, and one unloading section. Each of the five dryer sections is equipped with individual gas burner, fan and control. All of the drying is accomplished by the passage of hot air over the surface of the sheets. Fresh dry air from outside is drawn in and passed through the heaters. Moisture laden air from the dryer sections is discharged into the outside atmosphere.

The temperature in the drying sections can be controlled from 200 degrees F. to 425 degrees F.

Heat for the dryers is furnished by gas burners consisting of two sections of vertical burners made up of 65 individual burners. Gas and combustion air is mixed ahead of the burners. These burners are located directly in the top circulating ducts of the dryer and the flame of the burners is in the top circulating duct of this unit.

Groups of 5 burners are controlled by individual gas supply lines and solenoid valves. These groups of 5 burners are turned on as heat is required in the dryer. One fan supplies all of the burners for each zone with combustion air.

The sheets are carried through the dryer on live rolls, and the speed of the dryer is coordinated with that of the rest of the machine.

At the discharge end of the dryer the unloader moves the sheets successively from each of the eight decks and passes them to a roller conveyor, on which they are carried to the trim and edger saw. This saw handles a maximum size sheet 13 feet wide by 24¼ feet long. The saw can be readily adjusted to cut different widths and lengths of board. Pieces 4 feet wide and 8 feet long are the most popular and 9 pieces of this size can be cut from one large sheet coming from the dryer.

Two right angle passes are used at the saw to make the cuts. The first pass is by roller conveyor and is really a continuation of the travel of the sheet from the dryer. This pass makes the width-grain cuts and edgings. The next pass is at a 90 degree angle and is accomplished by lug chain conveyors. This pass makes the cross grain and trimming cuts. Each pass is equipped with two complete saw arbors to avoid delay in changing sheet sizes. Thus, saw spacing for the next run can be made without interfering with present operation.

Sheets from the saw are passed to a transfer table which handles them either to the coating line or to a take off line from which they may be sent to groovers, laminator or packaging equipment.

Sawdust from sawing or cutting operations is drawn by vacuum into nozzles located on all machines. The dust is then carried in pipes to five collectors located outside the finishing building. These collectors, or washers, are size 5½, type B, side inlet, top outlet. They have a capacity of 20,000 to 24,000 CFM per collector. The dust is blown in the collector at a point approximately eight feet from the bottom of the collectors. The dust is wet down by means of a series of sprays inside the collector. Air is exhausted from the top and dust is pumped from the bottom back to the broke chest at the forming end of the mill.

Coaters

There are two double head felt coaters equipped with single deck surface dryers. Drying is accomplished by circulating air at 300 to 400 degrees F. The board receives two coats of paint, is then dried and passed to a second coating unit where two additional coats are applied and then dried.

Asphalt Laminating

The asphalt laminating system consists of two gas fired melting kettles plus a laminating unit which handles material up to two feet in width. Hot asphalt is pumped to a vat in which the bottom roll of a pair of transfer rolls is immersed. Asphalt is applied to the bottom of the panel as it rolls between the top transfer roll and a top press roll. Another panel is then pressed against the melted asphalt surface and the sandwich is passed through a set of press rolls.

Finishing Equipment

Two single roll feed, single arbor rip saws are used to cut sheets into planks, panels, or strips.

Two slat bed saws containing single arbors are used to cut panels or planks into ceiling tile blanks.

There are two plank and panel machines each arranged in two passes which trim and shape the lightning joint in all four sides of the panels. A semi-automatic wrapping and packaging machine handles insulating board four feet wide in lengths of 6 to 12 feet. Sheets are wrapped in kraft paper and glue is applied to the wrapped edges of the package. A compression unit folds the paper and holds its edge tight until the glue sets. Live rolls carry the packages through the unit.

Product Storage

The large finishing and warehouse building provides storage capacity for 12 million square feet of finished board. Enclosed loading platform for trucks and railroad cars provides efficient shipping facilities. The indoor rail siding and platform will accommodate 13 railroad cars.

Power Plant

Electric power is purchased from the Mississippi Power and Light Co. and is brought to a substation containing two transformers which reduce the voltage from 55,000 down to 220 for use in the plant.

Steam is produced in two boilers. One boiler with a capacity of 30,000 lbs. of steam per hour, is equipped with facilities for burning bark and sawdust, also with auxiliary gas burners. The other boiler, with a capacity of 20,000 lbs. of steam per hour is gas fired.

Water System

The plant supply water is obtained from four deep wells, each pumping about 300 gpm.

The main water storage reservoir has a capacity of over one million gallons with a 600,000 gallon auxiliary reserve tank for fire protection purposes. An elevated water tank with a capacity of 100,000 gallons provides water and pressure for the fire protection system.

The effluent from the plant is through a J-M Transite pipe line which pumped to the Mississippi River is 12 inches in diameter and over six miles long.

ONLY A UNI-PULL DRIVE
gives you this
BUILT-IN "SELF-CONTROL"

How The Waterproofed Leather Belt Plus Motor Base Protect Short Center Drive Life

The UNI-PULL drive not only provides uniform pull both *across* and *around* the pulleys, it also controls itself two ways.

1. The motor base controls tension, keeping it uniform despite changes in load. This protects bearing life and assures efficient power transmission.

2. The waterproofed leather belt acts as a pulley alignment indicator. This gives UNI-PULL a definite life-protecting advantage over multiple-pull drives. These cannot indicate misalignment because they are trapped in grooves. *In operation, misaligned multiple-pull belts grind away service life against the groove walls.* In the UNI-PULL drive, if pulleys are not correctly aligned, the belt will show it by running partly or completely off the faces.

Here's another advantage . . . the UNI-PULL flat leather belt pulls as a unit. No danger of separate, uneven tensions. There is one undivided power path from pulley to pulley.

Remember too, a quality flat leather belt cushions shock better than any substitute material.

AL-48

Ask your leather belting supplier how the UNI-PULL drive with waterproofed leather belting can be used in your mill.

American LEATHER BELTING *Association*

Headquarters for Authentic Power Transmission Data

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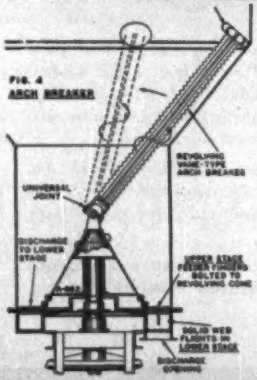
Equipment and Suppliers For Natchez Mill

American Meter Co.: Instruments.
Babcock & Wilcox Co.: Boiler.
Bailey Meter Co.: Instruments.
Bauer Bros. Co.: Refiners.
Biggs Boiler Works Co.: Globe Digesters.
Bird Machine Co.: Vickery Felt Conditioners; Jonsson Knotters.
Bristol Co.: Instruments.
Brown Instrument Div., Minneapolis-Honeywell Co.: Instruments.
Carborundum Co.: Grinder Stones.
Carthage Machine Co.: Chipper and Barking Drums.
Coe Mfg. Co.: Board Machine drier sections.
Detroit Hoist & Machine Co.: Roto-stoker.
Downingtown Mfg. Co.: Board Machine wet end press section.
Ducon Company: Dust Collectors.
Erie City Iron Works: Boiler.
Falk Corp.: Reduction Gears.
Foxboro Co.: Instruments.
Hardinge Co., Inc.: Ball Mill.
Jeffrey Mfg. Co.: Chip Bins; Conveyors.
Kochring Co.: Crawler Crane; Woodyard.
Mereen-Johnson Machine Co.: Various Saws and Cutting Machinery.
Montague Machine Co.: Grinders.
Nash Engineering Co.: Vacuum Pumps.
Norton Company: Grinder Stones.
Oliver United Filters, Inc.: Board Machine; Forming Cylinder.
Peabody Engineering Corp.: Gas Burners.
J. O. Ross Engineering Co.: Coating Dryers; Ventilation Systems.
Orville, Simpson Co.: Rotex Chip Screens.
Shaw Box Crane & Hoist Div.: Bridge crane over soaking tanks.
Taylor Instrument Co.: Instruments.
Trimbey Machine Works: Screens.
W. S. Tyler Co.: Hummer Vibratory Screen.
John Waldron Corp.: Coaters.
Westinghouse Electric Corp.: Motors.

Get Free or MEASURED Flow of Wood Chips

with an S-A circular bin discharger



S-A Circular Bin Discharger with Arch Breaker. Vane rotates on own axis as spider on end rolls around bin.

Insures uniform, positive discharge of raw or cooked wood chips, clay for paper coating and other bulk materials that otherwise tend to clog or arch over discharge openings. No handling or manual control is needed because discharge can be in measured volume as required; for example in combined discharge-feeder operations. Unit includes a revolving cone with projecting fingers that agitate the material and sweep it over a discharge outlet. All models may be had with revolving, vane-type Mechanical Arch Breaker that prevents bridging inside the bin and loosens packed material. Units are dust-tight, self contained and may be used with virtually any bin or silo. Capacities for all usual requirements. Write us for a copy of Bin Discharger bulletin 230.

1901-1951

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DESIGNERS AND MANUFACTURERS OF ALL TYPES OF BULK MATERIALS HANDLING EQUIPMENT

STUMPAGE EXEMPT FROM CPR

WASHINGTON, D. C. — All sales of timber on the stump are exempted from the General Ceiling Price Regulation, under a supplementary OPS regulation issued this week.

It was pointed out that because of great variations in timber from individual stands and because of the thousands of individual tracts of timber all over the country, price control would present a major problem, and is considered administratively impractical at this time.

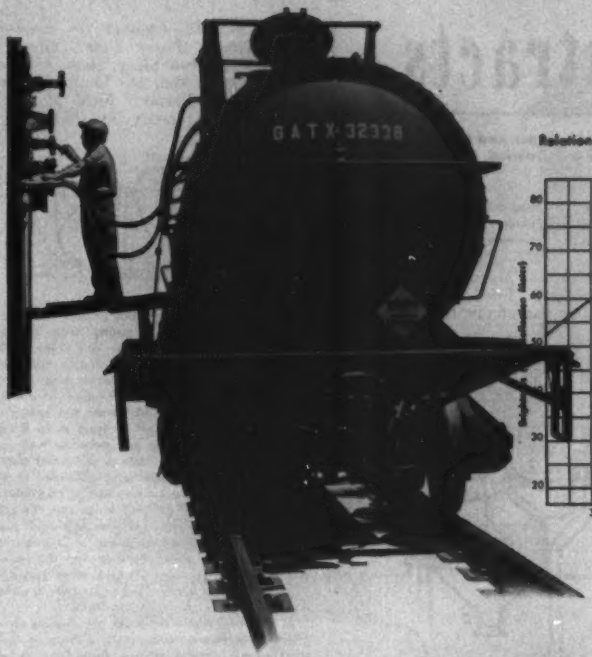
"No two tracts of timber have identical physical characteristics and there is a wide geographical dispersal of timber," the agency pointed out.

During the Second World War stumpage likewise was exempted from the General Maximum CPR of that time, and remained decontrolled throughout the OPA regime except for stumpage West of the 100th meridian, which would be west of the Mid-Western farm belt. No such exception was included in the action, all stumpage is exempt.

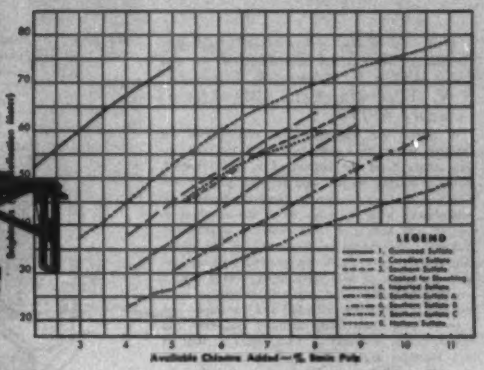
Also, said OPS, it is expected that the exemption now provided will have the effect of increasing lumber production by increasing sale of stumpage owned by Federal agencies.

FEDERAL SUPPLY PRICING

WASHINGTON, D. C. — Government agencies may continue to procure supplies from their regular long-term contract suppliers, under a special pricing procedure by the Office of Price Stabilization.



Relation of Brightness to Available Chlorine Added in Single Stage Hypochlorite Bleaching of Several Sulphate Pulps

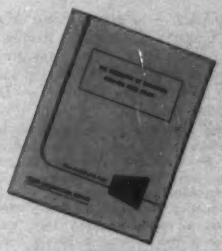


BRIGHTNESS CONTROL
begins here . . .

When you buy bleaching chemicals, don't overlook the all-important "how-to" that follows the shipment into your plant; helps you handle and use it most effectively and most profitably; saves you processing dollars; gives you the product grades you want.

Hooker Technical Service works closely with you to solve problems of handling chlorine and caustic soda in the most efficient, economical and safe manner. This assistance is based on years of service to the pulp and paper industry.

Hooker Chlorine and Caustic Soda, produced in the efficient "S" Cells at Niagara Falls and Tacoma, are well suited to your processing needs. They are shipped in properly conditioned and inspected tank cars, on carefully planned schedules that tie in with your production needs.



SEND FOR THIS HELPFUL BLEACHING DATA

Bulletin No.

201 Process and Equipment for Making Bleach Liquor for Use Without Settling

211 Chemistry of Bleaching Chemical Wood Pulps

214 What Do We Know About Bleaching?

236 Importance of pH and Catalysts in Bleaching Operations

242 Production and Use of Unsettled Bleach Liquor

243 Procedures and Brightness Grades in Bleaching Sulfate Pulps

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Patent Abstracts

● *In addition to abstracts on the technology of pulp, paper and related industries, miscellaneous abstracts which may provide useful information are included.*

U.S. 2,540,162 — Feeder Bar for Feeding Sheets of Cardboard or the Like. Wilber E. Bowersock, Rochester, N. Y. Filed March 13, 1948 — Issued February 6, 1951.

A feeder bar adapted to be reciprocated for feeding sheets of corrugated cardboard and the like singly from the bottom of a stack thereof, said bar having on the side thereof lying in the direction of feed an upright feeding shoulder for engagement with the edge of a bottom sheet to be fed and having at said shoulder a series of pointed teeth extending forwardly in the direction of feed and spaced longitudinally along said bar, the points of said teeth being arranged at a height intermediate the top and bottom of said bar and of said sheet to be fed and the upper surfaces of said teeth being inclined upwardly and rearwardly to a height at least equal to that of said shoulder for raising the superposed sheets to enable said bar to clear and pass under the same and thereby feed single sheets having a thickness equal to or less than that of said bar.

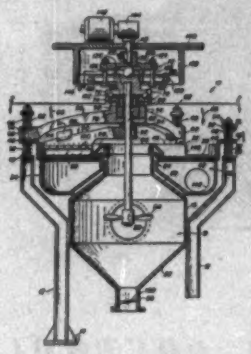
U.S. 2,540,301 — Papermaking Machine and Control Therefor. Stephen A. Staege, Hamilton, Ohio, assignor to The Black-Clawson Company, Hamilton, Ohio. Filed July 30, 1945 — Issued February 6, 1951.

Paper making apparatus of the character described comprising a forming member adapted to operate under a predetermined desired condition of liquid level, means for supplying stock in liquid suspension to said forming member and for recirculating the white water and overflow therefrom, a chamber spaced from said forming member and having a liquid level therein which varies in corresponding relation with that effective upon said forming member, adjustable means for varying the liquid level effective upon said forming member, a pair of electrodes of different length within said chamber the longer one only of which is adapted to be in contact with the liquid therein in the normal position of said liquid level, control circuits selectively actuated in response to change in the number of electrodes in contact with said liquid, and power actuated means under control of said control circuits for selectively adjusting said level varying means and concurrently shifting said electrode assembly vertically to correct for said adjusting movement to maintain said predetermined desired liquid level.

U.S. 2,540,352 — Method of Making Wet Strength Paper. Willard Allan Schenck, Brooklyn, N. Y., assignor to Munising Paper Company, Munising, Mich. Filed October 27, 1945 — Issued February 6, 1951.

In a method of preparing absorptive paper of high wet strength without materially changing the appearance and feel thereof, the improvement which comprises impregnating paper with a solution of formaldehyde containing about 1 per cent of synthetic linear polyamide which consists of the polymerization product of a linear polymer-forming material selected from one of the groups consisting of monoaminocarboxylic acids and mixtures of diamine with dibasic carboxylic acid, and drying said paper after impregnation in the presence of an acid catalyst whereby said paper is substantially uniformly impregnated throughout with from 0.5% to 5.0% of said synthetic linear polyamide resin.

U.S. 2,540,517—Paper Stock Screening Apparatus. Mark A. Glasco, Middletown, Ohio. Filed May 11, 1948 — Issued February 6, 1951.



In a paper stock screening apparatus, the combination of a substantially tubular primary chamber provided in one side thereof with a material inlet port and having an outlet port at its upper end, an annular secondary chamber surrounding the upper end portion of said primary chamber and having a foraminous top adapted to receive material discharged from said outlet port, said secondary chamber being provided with an outlet opening disposed below the foraminous top thereof, an upstanding marginal rim provided at the outer edge of said foraminous top and formed with an outlet recess, a rotatable agitator shaft extending into said primary chamber through the outlet port of the latter, an agitating member secured to said shaft in said primary chamber, and a brush member secured to said shaft and engageable with said foraminous top.

Can. 471,028—Bag Forming, Filling and Sealing Machines. Victor George Williams, Walter Wood and Laurence G. Bateman, Toronto, Ontario, Canada, assignors, by mesne assignments, to Delamere & Williams Company, Limited, Toronto, Ontario, Canada. Filed September 30, 1946 — Issued January 23, 1951.

A packaging machine, comprising a supply roll of bag making material, a plurality of advancing grippers, each gripper having a pair of jaws adapted to grip and draw the material from the roll, the jaws being adapted to be opened in the shape of a V and to be closed to grip the material between them; and a guide for directing the material between the opened grippers and folding it along its longitudinal axis, said guide comprising a central longitudinal downwardly sloping finger, to centrally depress the material between the jaws, side longitudinal fingers outwardly extending to spread the paper outwardly into engagement with the opened grippers, and a transverse bar extending above the grippers, adjacent to their upper ends and adapted to engage the edges of the material and retain the material between the opened grippers.

Can. 471,112—Engines for Beating and Refining Paper Pulp. Edouard Hery, Neuilly-sur-Siene, Siene, France, and Kristen Andreas Thorsen, Grenoble, Isere, France. Filed May 26, 1948—Issued January 30, 1951.

A beating engine for paper pulp beating comprising a rotary drum provided with grooves constituted by radial blades on said drum and a beater plate having blades cooperating with the blades on the drum, in combination with a pulp supplying reservoir in which the pulp is at a level substantially higher than the drum and having a delivery port tangential to the drum in its lower part, and with a guiding and deflecting wall extending from said beater plate to above said reservoir, the said beater plate being positioned so as to project the pulp backwardly and to reintroduce the pulp in the reservoir after its passage through said beater plate to maintain the hydrostatic delivery pressure of the reservoir at a constant value during the whole operation and the reservoir having an inlet port and an outlet port for the pulp disposed at either one of its ends to make the pulp advance axially in the engine.

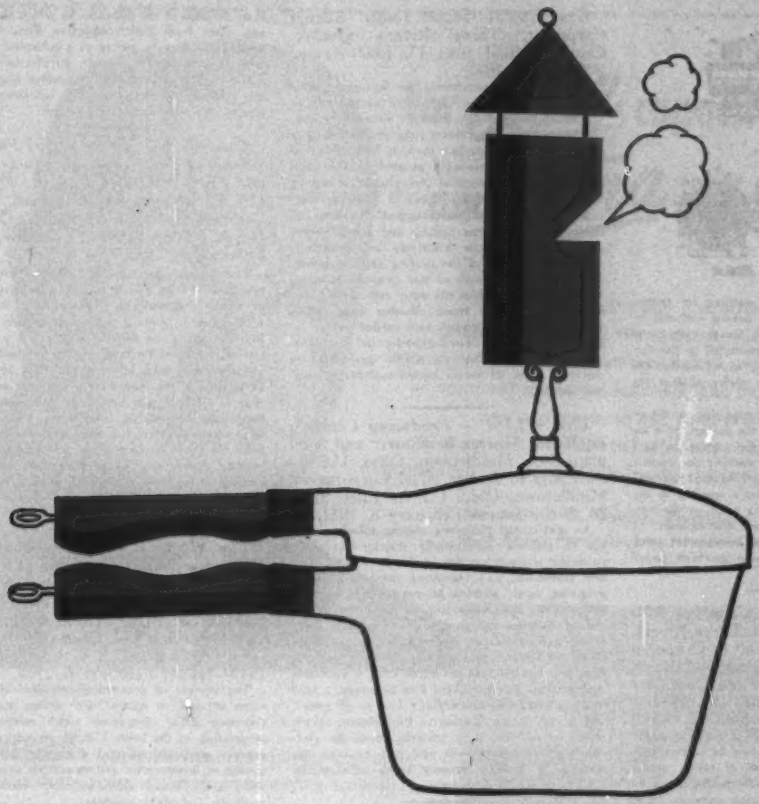
In a beating engine for paper pulp beating comprising a horizontal rotary shaft, a drum on said shaft having grooves thereon formed by radial blades and a doublebeater plate with blades cooperating with the blades on the drum, the combination of a reservoir having its lower part engaged under the drum and containing pulp at a level which is 3 to 4 times the radius of the drum, with a guiding and deflecting wall extending from said double beater plate to the top of the reservoir, the said double beater plate being symmetrically disposed with respect to the horizontal center line of the drum in the front thereof so as to project the pulp backwardly and to reintroduce the pulp in the reservoir after its passage through the beater plate to maintain the hydrostatic delivery pressure of the reservoir at a constant value during the whole operation, and the reservoir having an inlet port and an outlet port disposed at either one of its ends to make the pulp advance axially in the engine.

Can. 471,131—Methods of Treating and Transporting Wood Pulp and the Like. Niels Marius Nielsen, Oslo, Norway. Application December 27, 1945. Filed December 27, 1945—Issued January 30, 1951.

A method of avoiding the danger of damage to wood or other pulp in paper making consequent upon the transport of the pulp in dried and baled condition from a pulping mill, wherein the original pulp from the mill, instead of being dried and baled, has a substantial proportion only of the water removed, so as to form a concentrated suspension in which the condition of the fibrous material itself remains unchanged, whereafter this concentrated pulp suspension is transported to the paper making plant, and is subsequently made up with water to the required concentration for use in paper making, without the necessity of disintegrating or softening treatments.

Can. 471,134 — Log Debarking Devices. Vaino Piispanen, Billnas, Finland. Filed June 12, 1948—Issued January 30, 1951.

A log debarking device, comprising a rotary carrier having an opening for the passage of a log therethrough, a support for the carrier, a bark



Wyandotte Caustic cooks stronger strawboard

This story is about a strawboard manufacturer who wasn't satisfied. The company had been cooking their straw with a 10 to 12% concentration of lime. But was there a better way? They wanted to know . . . and so they got in touch with Wyandotte's Technical Service.

We made suggestions and they started to run some tests. The second test was a success. A combination of 4% caustic soda and 2% lime created a strawboard that was *one-third stronger.*

But that was just the beginning. Wyandotte's Technical Service recommended liquid caustic, drew up plans for handling, storage and dilution, and was on hand when the first tank car was unloaded. That's Wyandotte's Technical Service for you — and it *is* for *you.*

SODA ASH • CAUSTIC SODA • BICARBONATE OF SODA
CALCIUM CARBONATE • CALCIUM CHLORIDE • CHLORINE
HYDROGEN • DRY ICE • SYNTHETIC DETERGENTS • GLYCOLS
CARBOSE (Sodium CMC) • ETHYLENE DICHLORIDE • PROPYLENE
DICHLORIDE • AROMATIC SULFONIC ACID DERIVATIVES
OTHER ORGANIC AND INORGANIC CHEMICALS

WYANDOTTE CHEMICALS CORPORATION
Wyandotte, Michigan • Offices in Principal Cities

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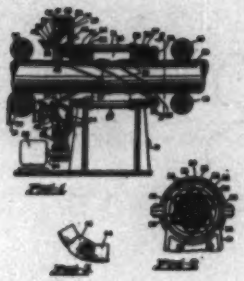

peeler extending through the opening for removing the bark from a log and having one end secured to the carrier, a holder for the other end of the bark peeler pivotally connected to the carrier, and a pneumatic extender to act against the holder for pressing the bark peeler against the log.

A log debarking device, comprising a rotary carrier having an opening for the passage of a log therethrough, a support for the carrier, a bark peeler extending through the opening for removing the bark from a log and having one end secured to the carrier, a holder connected to the other end of the bark peeler, a pivot on the carrier for the holder, and a pneumatic extender to act against the holder at a point between the pivot and the bark peeler for pressing the bark peeler against the log.

Can. 471,159 — Roll Crimping Machines. Harry C. Bryans, Three Rivers, Quebec, Canada, assignor to Canadian International Paper Company, Montreal, Quebec, Canada. Filed December 22, 1949—Issued January 30, 1951.

A machine for crimping the projecting ends of wrapping material over the ends of a roll of paper covered thereby comprising a pair of carrier rolls for supporting a wrapped roll of paper, means for positively driving said rolls in the same direction, one of said rolls being provided with spaced sets of radially-extending crimping elements movably mounted thereon, and means for positively adjusting the spacing between said sets of crimping elements.

A machine for crimping the projecting ends of wrapping material over the ends of a roll of paper covered thereby comprising a pair of carrier rolls for supporting a wrapped roll of paper, means for positively driving said rolls in the same direction, one of said rolls being provided with spaced sets of radially-extending crimping elements movably mounted thereon, means for positively adjusting the spacing between said sets of crimping elements, and means for ejecting the wrapped roll of paper following completion of crimping.

Can. 471,254—Steam Joints. Russell Carpenter, Three Rivers, Quebec, Canada. Filed June 13, 1947—Issued February 6, 1951.

A steam joint attachment for a rotary steam heated cylinder comprising parts adapted to be selectively assembled to provide either a syphon-type or a bucket-type steam joint attachment, said parts including a conduit open at both ends and having one end removably secured to the outer end of a hollow journal of the cylinder, a bearing housing in which said conduit is rotatably journalled and a pair of interchangeable castings including a syphon-type casting and a bucket-type casting adapted to be selectively and detachably secured to the end of the bearing housing remote from said journal, each of said castings including a stuffing box in which the outer end of said conduit is received, a steam chamber from which steam is delivered through said conduit to the interior of the steam heated cylinder and a condensate-receiving chamber to which condensate is delivered from the steam heated cylinder through said conduit.

Can. 471,284 — Producing Coatings on Metal. George R. Hoover and Norman Cox, Middletown, Ohio, U.S.A., assignors to Armco Steel Corporation, Middletown, Ohio, U.S.A. Filed Sept. 28, 1949—Issued February 6, 1951.

An accelerated phosphate coating solution capable of yielding substantially fluorine-free paint receiving coatings on the surfaces of iron, zinc and aluminum, and consisting essentially of an oxidizing agent adapted to remove hydrogen in the process and equivalent to .30% to 2.65% nitrate, fluorine, and an acid phosphate of a metal which will deposit as a phosphate coating, water being the solvent, said solution having a ratio of free acid to total acid of 1:2 to 1:10, a free acid content from substantially 1.5 to 10 points, a total acid content from substantially 16.0 to 65 points, and in which the fluorine in the solution results from the addition of a material from the class consisting of hydrofluoric acid and its salts, the amount of fluorine present being substantially 0.015% to 0.80% by weight.

Can. 471,285—Apparatus for Manufacturing Valve Bags. Daniel Belcher, Minneapolis, Minnesota, U.S.A., and Russell J. Williams and James E. Voege, St. Louis, Missouri, U.S.A., assignors to Bemis Bro. Bag Company, St. Louis, Missouri, U.S.A. Filed June 25, 1947—Issued February 6, 1951.

A bag-spreading device comprising a pair of bag-spreading blades, each blade being pivoted for swinging movement on an axis substantially parallel to and offset from the plane of the blade, the axes of said blades being substantially parallel and spaced apart a distance somewhat greater than the sum of the distances by which the blades are offset from their respective axes, whereby said blades may be swung to a collapsed position wherein they are substantially parallel and closely adjacent each other and an expanded, bag-spreading position wherein they are substantially coplanar and relatively widely spaced.

Can. 471,302—Processes of Forming Boards or the Like and Products. Gordon E. Tower, Corvallis, Oregon, U.S.A., assignor to Chapman Forest Utilization, Inc., Corvallis, Oregon, U.S.A. Filed April 10, 1948—Issued February 6, 1951.

The process of forming artificial boards or boardlike articles which comprises reducing wood or woody substances to fibers, mixing the fibers with water to form a slurry, thoroughly mixing into the slurry an alkaline solution of a thermosetting, intermediate condensation product of the phenolic resin type, allowing the resin to remain in solution in the slurry for a sufficient period of time to establish sorption of the resin solution by the fibers, substantially neutralizing the mixture to precipitate the resin in situ, straining the water from the slurry to form a mat of entangled resin-bearing fibers, and compressing the mat while heating it to form a finished product of fibers and infusible, insoluble, final condensation product resin.

Can. 471,303—Methods of Inhibiting Hydrogen Sulfide Corrosion of Metals. Melvin I. Moyer, Lawrence, Kansas, U.S.A., and Joseph M. Hersh, Forest Hills, New York, U.S.A., assignors to Cities Service Oil Company, Bartlesville, Oklahoma, U.S.A. Filed Sept 19, 1949—Issued February 6, 1951.

The process of preventing corrosion of metals when exposed to contact with brines containing corrosive sulfur compounds which comprises incorporating in the brine a small proportion of an organic compound selected from the group consisting of heterocyclic amino-reactive compounds, alkyl and alkanol amino-aldehyde condensation products, and alkyl-thioureas.

The process of protecting metal equipment which is subject to the corrosive action of oilwell brines containing hydrogen sulfide which comprises introducing into a producing oil a corrosion inhibiting agent consisting essentially of a compound selected from the group consisting of heterocyclic amino-reactive compounds, alkyl and alkanol amine-aldehyde condensation products, and alkyl-thioureas.

The process of inhibiting the corrosion of metal equipment when exposed to corrosive brines containing hydrogen sulfide, which comprises incorporating in the brine a small proportion of a heterocyclic amine inhibitor, the proportion of such inhibitor being effective to substantially inhibit the corrosion of metal equipment.

The process as defined by claim 9 in which from 15 to 250 parts by weight of the inhibitor is mixed with each million parts by weight of brine.

Can. 471,330 — Cartons and Display Baskets. John G. Fettinger, Utica, New York, U.S.A., assignor to Gair Company of Canada Limited, Toronto, Ontario, Canada. Filed March 11, 1948—Issued February 6, 1951.

An article of the class described comprising a four-sided paperboard receptacle having sections which overlap when the sides are vertically arranged, and folding flaps for restraining said sections in overlapped relationship and for guiding them into abutting relationship when the sides are spread apart at the top and inclined to the vertical, said sections having locking projections for engagement with a slot at the fold line of said flaps when the sides are spread apart at the top as aforesaid.

for *extra* capacity and *extra* precision!

"EVERYONE KNOWS that production problems are rapidly mounting in the paper making and printing industries. Now, more than ever before, we can't afford to waste either time or materials. The recent addition of new equipment to our plant provides that *extra* capacity which is needed to keep a step ahead of the pace—so that each job can be handled with *extra* care to avoid waste."

Mr. Arthur G. Nelson, President
A. G. Nelson Paper Co., Inc., New York, N. Y.

The Camachine Type 10 Model 04 slitter rewinder recently installed at A. G. Nelson Company is equipped with: Camachine 1B-PMR pneumatic mill-roll stand; electric riding roll lift; and Pneucut patented pneumatic slitter units. Handles 72" rolls at 2000 feet per minute. Rewound diameters to 40".*

*Trade name reg. U. S. Pat. Off.

NELSON's reputation has been built through more than thirty years of service in supplying accurately rewound paper rolls and sheets for the printing industry of Metropolitan New York. The A. G. Nelson plant, completely equipped with modern slitting, rewinding and sheeting equipment, also serves as a finishing room for paper mills.

High-speed web-fed printing presses call for absolutely true slitting and rewinding to assure the uniform web tension which minimizes web breaks, and to provide more accurate lengthwise and sidewise register on the travelling web. Because they are backed by more than thirty years of know-how in roll production it is not surprising to find the A. G. Nelson Company plant equipped exclusively with *Camachine* slitters and rewinders.

Over the years *Camachine* has proved to be the *one* outstanding name in roll production equipment . . . for rubber, textiles, plastics and other materials, as well as for paper and paper board. No matter what material you produce or convert in roll form, it will pay you to consult with *Camachine* engineers regarding faster production and improved roll quality.

Cameron Machine Co., 61 Poplar St., Brooklyn 2, N.Y.

They can depend on Camachine

UNDERWRITERS
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Financial News

STOCK REPORT

	Per Share Earnings		Indic. Annual Divid. Rate	April 18 Approx. Market Price
	Calendar Year 1949	12 Mo. to Approx. 12/31/50		
PREFERRED STOCKS				
Armstrong Cork Co. $3.75 Cum.	$40.95*	$48.80*	$3.75	95¼
Armstrong Cork Co. $4.00 Cum. Conv.	40.95*	48.80*	4.00	118½
Celotex Corp. 5% Cum.	6.80c	14.34h	1.00	17½
Champion Paper & Fibre $4.50 Cum.	60.09f	103.62	4.50	102¾
Container Corp. of Amer. 4% Cum.	89.52	125.64	4.00	101¾
Crown-Zellerbach $4.20 Cum.	54.30e	67.00h	4.20	101¼
Dixie Cup Co. $2.50 Cum. Conv. Cl. A	10.93	16.31	2.50	62
Flintkote Co. $4.00 Cum.	62.70	90.41	4.00	100½
Robert Gair Co., Inc., 6% Cum.	13.79†	21.28†	1.20	19¾
International Paper Co. $4.00 Cum.	234.55	289.77	4.00	103½
Kimberly Clark Corp. 4% Cum.	85.27	114.95h	4.50	108¾
MacAndrews & Forbes 6% Cum.	61.59	63.03i	6.00	133¾
Mead Corp. 4¼% Cum.	51.37	97.08	4.25	99¼
Mead Corp. 2% Cum. Conv. 2nd	21.35*	40.05*	2.00	65
Pabco Products, Inc., 4% Cum. Conv.	56.46	120.13	4.00	100½
Rayonier, Inc., $2 Cum.	9.54	17.25	2.00	36½
St. Regis Paper Co. 4.40% 1st A	30.74	65.23	4.40	91¼
Scott Paper Co. $3.40 Cum.	51.15*	65.41*	3.40	96½
Scott Paper Co. $4.00 Cum.	51.15*	65.41*	4.00	102½
Sutherland Paper 4¼% Conv.	46.92	81.31	4.25	124¼
U. S. Gypsum Co. 7% Cum.	283.37	348.48	7.00	178½
United Wallpaper Inc., 4% Cum. Conv.	2.14	0.84	2.00	26
West Virginia Pulp & Paper 4½% Cum.	61.28e	99.36h	4.50	109½
COMMON STOCKS				
APW Products Co.	(d)0.81	0.45i	—	7½
American Writing Paper Corp.	.04	2.02	0.50	10
Armstrong Cork Co.	6.37	8.13	3.75	57½
Celotex Corp.	1.45c	3.78h	1.00	17¼
Certain-Teed Prods. Corp.	2.84	3.92	1.50	16¾
Champion Paper & Fibre	5.15f	9.44	2.45	53½
Congoleum Nairn Co.	3.04	3.29	2.00	26¼
Container Corp. of America	4.23	5.87	2.50	38½
Crown-Zellerbach	6.02e	7.34h	2.20	51¾
Dixie Cup Co.	7.44	12.18	1.50	61½
Eastern Corp.	0.04	4.39	1.00	20¾
Flintkote Co.	4.33	5.83	3.00	31¾
Robert Gair Co., Inc.	2.11†	3.37†	0.70	13¾
Great Northern Paper Co.	4.87	4.33	3.00	51½
International Paper Co.	7.12	7.39	2.50	53¾
Johns-Manville Corp.	4.83	7.22	3.50	58
Kimberly Clark Corp.	5.29	6.28h	1.80	45½
MacAndrews & Forbes Co.	3.64	3.74i	3.00	39½
Marathon Corp.	3.29c	5.40h	1.40	48
Mead Corp.	4.10	5.64	2.20	26¾
National Container Corp.	0.93	2.41	0.75	13¼
Pabco Products, Inc.	0.55	1.87	0.60	19¾
Rayonier, Inc.	4.75	9.61	2.50	51
Ruberoid Co.	7.93	9.64	3.18	57½
St. Regis Paper Co.	0.91	2.10	0.60	14½
Scott Paper Co.	3.04	3.90	2.00	51½
Sutherland Paper Co.	4.62	7.66	2.75	47¾
Union Bag & Paper Corp.	5.01	7.23	3.00	41¾
United Board & Carton	(d)1.61b	2.71g	0.50	19½
U. S. Gypsum Co.	13.51	16.70	10.00	118¾
United Wallpaper	(d)0.01	(d)0.01	—	3¾
West Virginia Pulp & Paper	8.58c	13.73h	5.00	80¼

(b) Year ended 11/13/49
(c) Year ended 1/31/50
(d) Deficit
(e) 12 months to 10/31/50
(f) 9 months to 12/31/49
(g) 12 months to 2/3/51
(h) 12 months to 1/31/51
(i) 12 months to 9/30/50
(*) Earnings per combined preferred shares
(†) Includes domestic and Canadian subsidiaries and 60% equity in Southern Paperboard Corp.

St. Regis Paper Co. net profit for the first quarter of 1951 amounted to approximately $4,800,000. This preliminary figure compared with $4,619,820 reported for the final quarter of 1950 and with $2,015,779 for the first three months of last year.

Net sales in the first three months of this year approximated $48,300,000, comparing with $45,489,087 in the final quarter of 1950 and $34,652,952 for the first three months of last year.

Diamond Alkali Co., net sales for the quarter period ending March 31, 1951, were $18,977,055 as compared to $12,734,924 for the same period in 1950.

First quarter 1951 net income, after provisions for Federal income and excess profits taxes, was $1,789,601 or $1.65 per share on 1,086,684 shares issued and outstanding. This compares with net earnings of $1,055,609 or 97c per share in the first quarter of 1950.

Important points to know about COTTRELL *Electrical Precipitators*

A COTTRELL Electrical Precipitator is a major plant investment. Once installed it is operated over a period of many years, *thus multiplying your after your the benefits of top notch design and installation.*

And because of the many factors affecting the operating and collecting efficiency of a COTTRELL Precipitator, probably in no other field do the experience and "know-how" of the organization designing and installing the unit play a more important role in influencing the overall performance of the installation. That is why it is so important to remember this fact . . .

Western Precipitation Corporation is the organization that installed the first successful COTTRELL Precipitator over 39 years ago, still operating efficiently . . . and has consistently developed new refinements, new techniques, new applications that today have made it world famous in the science of recovering dusts, fly ash, mists, fogs and other suspensions from gases.

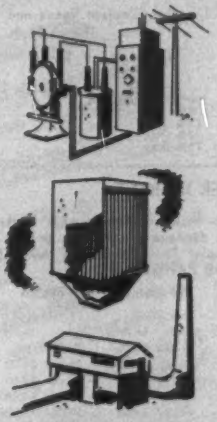
This is the first of a series of advertisements briefly outlining the important elements that go to make up a COTTRELL installation. Only long experience coupled with highest engineering ability, can assure the proper combination of these elements into a COTTRELL installation best suited to *your particular requirements*!

Basically, a Cottrell Precipitator consists of three major divisions each in turn consisting of many separate elements . . .

1. THE ENERGIZING SYSTEM, as its name implies, is the portion of the unit wherein the power is brought in, the voltage stepped up, then rectified to provide the unidirectional high voltage current supply for the Electrode System.

2. THE ELECTRODE SYSTEM consists of the high-tension ionizing electrodes and collecting electrodes through which the suspension-laden gas is passed to be cleaned. These electrodes can be of various designs, shapes and patterns and are equipped with various "rapper" arrangements which assist in keeping the electrodes clean of recovered materials.

3. THE HOUSING OR SHELL includes the structure containing the Electrode and Energizing Systems as well as the gas ducts and distributing system, the hoppers for receiving the collected material and other miscellaneous equipment.



Each of these three major divisions, together with their many individual parts, must be carefully engineered into ONE integrated and precisely-balanced unit to provide the successful and continuously-operating COTTRELL Precipitator. This series will take these major units apart to show in greater detail how the individual parts function and the varying types of design and construction. Watch for them.

10 COTTRELL ADVANTAGES

that make Cottrell unsurpassed for all types of recovery problems, hot or cold, wet or dry

1. **LOWEST DRAFT LOSS** — only a few tenths of an inch w. g.
2. **LOWEST POWER COST** — only ½ to 1 kwh. per 100,000 cu. ft. of gas cleaned.
3. **LOWEST MAINTENANCE COST** — all metal, few moving parts, no fire hazard.
4. **LOWEST LABOR COST** — operation can be fully automatic, if desired.
5. **LONGEST LIFE** — only Cottrell installations still operating after 39 years of continuous service.
6. **HIGHEST EFFICIENCY** — recovery efficiency approaches 100%, if desired.
7. **UNIVERSAL APPLICABILITY** — recover any suspension, solid or liquid — in any gas — over wide temperature ranges.
8. **ANY CAPACITY** — handle a few c.f.m. — or millions — with equal ease.
9. **MAXIMUM FLEXIBILITY** — readily adaptable to varying installation requirements.
10. **LOWEST OVERALL COST** — cost less per year of service, less per ton recovered. Often pay for themselves in a few months — always within a few years.

WESTERN Precipitation CORPORATION

ENGINEERS, DESIGNERS & MANUFACTURERS OF EQUIPMENT FOR COLLECTION OF SUSPENDED MATERIALS FROM GASES & LIQUIDS

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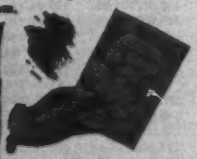


Do You Have This Helpful COTTRELL Booklet? In 32 pages of interesting charts, illustrations and descriptive data, it answers many of the questions engineers ask about COTTRELL design and construction. Send for your free copy. Ask for Bulletin CB95!

PRICES

The prices below reflect market quotations in New York at the mill level on standard grades. Most orders accepted, however, at price prevailing on date of shipment. Does not include spot offerings.

PAPER AND BOARD

Standard News, Delivered Ports

Rolls, contract, per ton	$105.00/110.00
Sheets	118.00/ —

F.o.b. Mills. C.l. Frt. allowed, dock, N. Y.

Kraft— pr cwt., 40# base wgt.

Standard Wrapping Rolls	$7.75/ —
No. 1 Wrapping Rolls	8.25/ 8.50
Standard Bag	7.50/ —

Tissues— per ream 24x36 (480) 10 lbs. 2500 lbs or more

Wh. No. 1 Frd.	$1.95 /$2.25
Wh. No. 1 MG	1.95 / 2.25
Wh. No. 1½	1.85 / 2.15
Wh. No. 2	1.85 / 2.15
Kraft Non-Tar	1.85 / 2.15
White Non-Tar	1.95 / —

Toilet— per case or 100 rolls—1 M sheets

Unbleached 4½x4½	$8.00/$8.25
Unbleached 4½x5	6.60/ —
Bleached 4½x4½	10.00/12.50
Bleached 4½x5	9.85/ —
Per Case of 50 rolls—2000 sheets	
Unbleached 4½x4½	$8.00/$9.75
Bleached 4½x4½	6.95/ —
Per Case of 100 rolls—1000 sheets	
Facial, 4½x5, 2-ply	$8.95/10.65

Paper Towels— per case of 3750

Wh. Jr. M'tif'd 9½x9½	$5.75
Br. Sr. M'tif'd 9½x12	4.10
Br. Jr. M'tif'd 9½x9½	3.60
Br. Jr. Sgl. fold 9½x10½	3.65
Bichd. 7½x11, 24/25 rolls	$7.00/7.55

Manila, per cwt.

No. 1 Jute Tag, 100-lb., sheets*	$19.55/21.55
Reg. Jute M.F. 40-lb., sheets*	18.00/20.00
Wrapping Manila	8.75/10.50
Printing Manila	10.50/12.00

* Less usual allowance for rolls.

WORLD WOOD PULP MARKETS

Second Quarter Contract Prices, Per Short Air-Dry Ton

	Varying freight allowances		Atlantic Ports		
	U. S.	Canadian	Swedish	Finnish	Norwegian
Groundwood	$85.00/100.00	$95.00/100.00			
Sulphate, Bleached	135.00/175.00	190.00/200.00	*$255.00/315.00		
Sulphate, Unbl. Northn.		145.00/175.00	*225.00/295.00	$200.00/ —	
Sulphate, Unbl. Southn.					*225.00/ —
Sulphite, Bichd. (Sftwd.)	135.00/145.00	160.00/175.00	*250.00/290.00	*225.00/ —	
Sulfite, Bichd. (Hdwd.)	155.00/ —				
Sulphite, Unbichd.		150.00/160.00	*225.00/265.00	*200.00/ —	
Sulphite, Unbl'd (Glassine)		164.00/ —	*227.00/ —		
Soda, Bichd.	140.00/142.50	155.00/160.00			
Sidersuns, Pulping News	106.00/ —	106.00/ —			

* On dock. † Delivered.

Gummed Tape— per bdl., 500 bdls. or more

90-lb. 375 ft. GSI	$7.20 / —
60-lb. 600 ft. GSI	7.20 / —
35-lb. 800 ft. GSI	8.28 / —
35-lb. 500 ft. GSO	6.21 / —

Boards, per ton—

Filled News	$107.50/ —
Plain Chip	105.00/107.50
Bichd. Mix. L-4 Chip	147.50/ —
White Pat. coated .020	170.00/ —
Kraft Liners 42 lb.	115.00/117.50
Kraft Corr. .009	122.50/126.00
Binders Boards	137.50/140.00

The following prices are representative distributors' resale prices:

Rag Content Bonds and Ledgers— White, 20 lb.

Bonds	4 Ctns.
	per cwt.
100% Rag Ex. No. 1	$70.45/$72.10
100% Rag	62.45/ —
75% Rag	48.15/ —
50% Rag	38.90/ —
25% Rag	31.65/ 33.00

Ledgers	4 Ctns.
	per cwt.
100% Rag Ex. No. 1	$73.65/ —
100% Rag	63.90/ —
75% Rag	49.40/ —
50% Rag	40.20/ —
25% Rag	33.00/ —

Sulphite Bonds and Ledgers White, 20 lb.

Bonds	4 Ctns.
	per cwt.
Watermarked	$19.00/$20.50
Plain	18.05/ 19.50

Ledgers	4 Ctns.
	per cwt.
Watermarked	$20.30/$21.80
Plain	19.35/ 20.80

White Book

Conversion Coated	Case
	per cwt.
No. 1	$23.40/$24.45
No. 2	21.90/ 23.40
No. 3	20.40/ 22.40
Machine Coated	
No. 1	$18.15/$18.40
No. 2	16.15/ 16.65
Uncoated	
No. 1 Antique (Watermarked)	$18.65/$19.15
Offset	17.40/ 19.90
A Grade E. F.	17.40/ 18.15
A Grade S. C.	18.15/ 18.65
B Grade E. F.	17.65/ —
B Grade S. C.	16.90/ 18.40

‡ Indicates a price change.

WASTE PAPER MARKET

The following quotations were gathered from major dealers in each market. They are an indication of the price range in which volume tonnage was moving on the date specified. Prices to mills, per ton, f.o.b. cars shipping point (includes brokers' fee.) PENDING OPS ROLLBACK, THESE PRICES REPRESENT CEILING RANGE.

	New York —	Philadelphia	Boston	Chicago
	April 16	April 11	April 14	April 16
No. 1 Mixed Paper	$25.00/ 26.00	$23.00/ 26.00	$23.00/ 26.00	$27.00/ —
Boxboard Cuts	30.00/ 33.00	21.00/ 23.00	26.00/ —	32.00/ —
Mill Wrappers	30.00/ 35.00	20.00/ 25.00	30.00/ 36.00	29.00/ —
No. 1 News	27.00/ 29.00	24.00/ 28.00	26.00/ 29.00	26.00/ —
Over-issue News	40.00/ 45.00	31.00/ —	33.00/ 45.00	35.00/ —
Corrugated Containers	49.00/ 50.00	49.00/ 53.00	50.00/ 55.00	52.00/ —
New Corrugated Cuts	74.00/ 80.00	50.00/ 51.00	55.00/ 65.00	62.00/ —
Double Kraft Ld. Corr. Cuts	115.00/120.00	105.00/120.00	120.00/140.00	120.00/ —
100% Kraft Corr. Cuts	140.00/165.00	125.00/135.00	130.00/170.00	135.00/ —
Used Kraft Bags	85.00/ 95.00	80.00/ 85.00	85.00/116.50	65.00/ —
No. 1 Brown Kraft Paper	90.00/ 95.00	90.00/ 95.00	90.00/110.00	65.00/ —
Super Resorted Br. Kraft	100.00/105.00	100.00/105.00	100.00/125.00	90.00/ —
New Br. Kraft Env. Cuts	160.00/190.00	160.00/175.00	160.00/180.00	150.00/ —
New Br. Kraft Cuts	150.00/170.00	130.00/140.00	150.00/180.00	140.00/ —
No. 1 Gdwd Shvs.	80.00/ 85.00	65.00/ 75.00	80.00/ 85.00	75.00/ —
White Newsblanks	105.00/115.00	100.00/110.00	110.00/120.00	115.00/ —
No. 1 Flyleaf Shvs.	80.00/ 85.00	80.00/85.00	95.00/110.00	110.00/ —
No. 1 Soft Wht. Shvs.	180.00/190.00	170.00/175.00	175.00/195.00	175.00/ —
Super Soft Wht. Shvs.	190.00/200.00	190.00/200.00	190.00/210.00	185.00/ —
Hd. Wht. Shvs.	185.00/210.00	190.00/215.00	190.00/215.00	180.00/ —
Hd. Wht. Env. Cuts	200.00/245.00	225.00/ —	200.00/235.00	190.00/ —
New Manila Env. Cuts	140.00/150.00	160.00/165.00	140.00/165.00	115.00/ —
Col. Tab Cards	110.00/120.00	115.00/120.00	95.00/150.00	100.00/ —
Manila Tab Cards	170.00/185.00	165.00/190.00	160.00/200.00	165.00/ —
No. 1 Mixed Ledger	100.00/105.00	100.00/105.00	90.00/110.00	100.00/ —
White Ledger	130.00/140.00	125.00/130.00	125.00/140.00	125.00/ —
No. 1 Book & Mag.†	55.00/ 60.00	40.00/ 45.00	40.00/ 60.00	35.00/ —
No. 1 Rep'd. Hvy. Books‡	65.00/ 70.00	50.00/ 60.00	60.00/ 75.00	55.00/ —

* Delivered. † Includes Time & Life; no coarse groundwood. ‡ Not to exceed 10% groundwood.

RAG MARKET

New Domestic Cotton Cuttings (Prices to Dealers, F.o.b. Ship. Pt.)

ALL PRICES NOMINAL

No. 1 White Shirts	$23.00/$24.00
No. 1 Unbichd. Muslins	23.00/ 24.00
Bichd. Canton Flannels	17.00/ 18.00
No. 1 Lt. Silesias	12.00/ 13.00
No. 1 Lt. Prints	9.00/ 12.00
Wht. Bk. Blue Overalls (Bichable)	15.50/ 16.00
No. 1 Blue Overalls	7.00/ 8.00
Fancy Shirts	6.00/ 6.50
No. 1 Washables	5.50/ 6.00
Suntan Khaki Cuts	11.00/ 12.00
Mixed Khaki Cuts	9.00/ 11.00
Corduroy Cuts	4.75/ 5.25
Cottonades	7.00/ 7.50
Bichd. Underwear Cuts	nominal
Unbichd. Underwear Cuts	nominal

Old Domestic Cotton Rags (Prices to Dealers, F.o.b. Ship. Pt.)

ALL PRICES NOMINAL

	Per 100 lbs.
Mixed White	$5.00/$5.50
Cotton Pants & Overalls	4.75/ 5.00
Thirds and Blues, Repacked	3.75/ 4.00
No. 1 Roofing Rags	3.00/ 3.10
No. 2 Roofing Rags	2.40/ 2.50
No. 3 & 4 Roofing Rags	2.20/ 2.30
Roofing Bagging	2.20/ 2.30

New Foreign Cotton Cuttings (Prices to Mills, F.o.b. Dock, N.Y.)

	Per 100 lbs.
New Dark Cuttings	$4.75/$5.00
New Mixed Cuttings	4.75/ 5.25
Light Silesias	8.00/ 8.50
Light Flannelettes	7.50/ 8.00
New White Cuttings	nominal
New Unbleached Cuttings	nominal
Fancy Shirt Cuttings	6.50/ 7.50

Light Prints	6.50/ 7.50
Bleachable Khaki, No. 1	6.00/ 6.50
Unbl. Khaki, No. 1	5.00/ 5.50

Old Foreign Rags

(Prices to Mills, F.o.b. Dock, N. Y.)

	Per 100 lbs.
No. 1 White Cottons	nominal
No. 2 White Cottons	nominal
No. 3 White Cottons	nominal
No. 4 White Cottons	nominal
Extra Light Prints	5.50/ 6.00
Old Light Prints	4.50/ 5.00
Med. Light Prints	3.75/ 4.00
Dutch Blue Cottons	4.00/ 4.50
Linsey Garments	2.75/ 3.00
Dark Cottons, Egyptian	2.50/ 2.75
Dark Cottons, European	2.75/ 3.00
Old Shoppories	2.40/ 2.50
New Shoppories	2.50/ 2.75

Bagging

(Prices to Dealers, f.o.b. N. Y.)

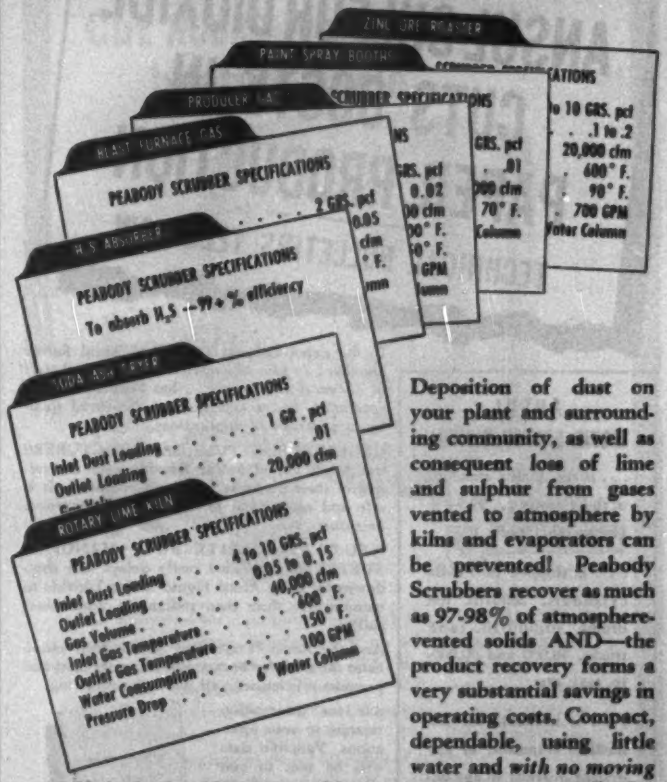
	Per 100 lbs.
Foreign Gunny	$8.00/$8.25
Domestic Gunny, No. 1	7.75/ 8.00
Heavy Wool Tares	7.00/ 7.50
Foreign Manila Rope	7.25/ 7.75
Domestic Manila Rope	7.00/ 7.25
Jute Strings	6.25/ 6.50
No. 1 Sisal Strings	7.25/ 7.50
Mixed Strings	nominal
Paper Mill Tares	5.25/ 5.75
No. 1 Scrap Burlap	
Foreign	6.50/ 6.75
Domestic	7.00/ 7.50
Austr. Wool Pouches	7.50/ 8.50
New Burlap Cuttings	7.50/ 8.00

MATERIALS

Aluminum, sulfate:		
coml. bags, wks.	cwt. 1.65	
iron-free c.l.	3.25	
Alcohol, ethyl:		
tax free, dns. c.l.	gal. .77	/ 1.02
dnld. East Miss.		
Alcohol, methyl:		
Synthetic, Zone 1, dns.		
c.l. ft. afld.	gal. .44	
Casein, acid-prec.:		
dom. sh. pt. c.l.	lb. .41	/ .44
imp. ex. dock	lb. .38½	/ .39½
Caustic soda:		
c.l. wks. solid, 76%, cwt.	3.35	
flak. & grd. 100-lb. drums	3.75	
liquid 50% tanks	2.55	
liquid 70% tanks	2.65	
China clay:		
dom. air-float, filler, c.l. wks.	ton 10.00	
water-washed, lump, filler	11.00	
coating	17.60	/30.50
imported, ex whse.	short ton 15.50	/28.35
Chlorine:		
single-unit tanks, works	cwt. 2.70	
multi-unit	cwt. 3.30	/ 4.40
Formaldehyde:		
USP, ink. dns, c.l. wks.	lb. .0600	/ .0625
f.o.b. E. wks.	.0650	/ .0675
Fuel oil:		
Bunker C, No. 6 Cal. hvy		
tanks, refinery	bbl. 1.95	/ 2.15
light	bbl. 2.05	/ 2.10
Hydrogen peroxide:		
USP, 35% obys. E. of Miss.	lb. .34½	/ .35½
Lime:		
hydrated, bags, wks. Buffalo	ton 13.50	
Rosin:		
B gum, drums, c.l. Savan.	cwt. 8.00	
G, H, I, K	cwt. 8.70	/ —
FF, wood, dn.	cwt. 7.20	/
Rosin size:		
70%, gum & pale grds, tank		
cars, south, sh. pt.	cwt. 6.80	/ 7.00
Salt cake:		
dom. bulk, c.l. wks.	ton 17.00	
wks. frt. all	ton 20.00	/23.00

reduce chemical losses with

PEABODY SCRUBBERS



Deposition of dust on your plant and surrounding community, as well as consequent loss of lime and sulphur from gases vented to atmosphere by kilns and evaporators can be prevented! Peabody Scrubbers recover as much as 97-98% of atmosphere-vented solids AND—the product recovery forms a very substantial savings in operating costs. Compact, dependable, using little water and *with no moving parts*, Peabody Scrubbers, proved by 20 years of use, may well offer startling economies and cleaner processing for your plant.

Write for Bulletin 203, today.

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ENGINEERING CORPORATION
580 FIFTH AVENUE • NEW YORK 19, N. Y.
Offices in Principal Cities

Soda ash:		
light, 58%, bags, wks.		1.50
bulk	cwt.	1.20
Sodium silicate 40°:		
turbid, c.l. wks.	cwt.	1.30 /
l.c.l. wks.		1.60 / 1.85
Sodium peroxide:		
dms. c.l. E. of Miss.	lb.	.19
l.c.l. do.	lb.	.19½/ .20
Soybean, protein:		
chem. ind, wks. c.l.	lb.	.36 / —
Cinn. and Chic.		
Sulfuric acid:		
60° Be. cbys. c.l. wks.	cwt.	1.75 / —
l.c.l. wks.	cwt.	2.85 / 2.60
Sulfur:		
crude, c.l. mines, contract,		
long ton		21.00 /22.00
f.o.b vessels Gulf		22.50 /23.50
Export, f.o.b. Gulf		25.00
Sulfur dioxide:		
liquid, comml. cyl. wks.	lb.	.09
multi-unit cars	lb.	.0535
Starches:		
pearl corn, bags, c.l. wks.	cwt.	6.02 / —
white dextrines, c.l. wks.	cwt.	7.41 / —
potato, Idaho, c.l. wks.	cwt.	8.50 / —
potato, Maine, c.l. wks.	cwt.	5.25 / —
tapioca, conv. dextrines	cwt.	8.25 / 8.75
medium grds. Gulf and East Coast ports		6.75 / 7.50
low, Siam, on dock N. Y.		5.75 / 6.00 nominal
Talc:		
domestic, 50-lb. sacks, c.l. wks.	ton	25.00 /30.00
Titanium dioxide:		
anastase, c.l. deld., bags	lb.	.21 / .21½
l.c.l. deld.	lb.	.22 / .23½
rutile, c.l. deld.	lb.	.23 / .23½
l.c.l. deld.	lb.	.24 / .24½

N.B.: For special market conditions see *Trends*.

IMPORTS

IMPORTS AT NEW YORK

Weeks Ending April 14-April 7

Newsprint

(———), Markland, Liverpool, N.S., 4037 rolls.
(———), (Alexandria, Va.), Markland, Liverpool, N.S., 3222 rolls.
Bowater Paper Co., Fort Amherst, St. Johns, 3476 rolls.
Madden Reeve Angel & Co., Inc., Elin Hope, Hango, 1161 rolls.
Montmorency Paper Co., Basford, St. Johns, 1694 rolls; 1068 rolls (Alexandria, Va.).

Sulphite Paper

Resolute Paper Products Co., Elin Hope, Hango, 122 rolls.

Paper Caps

Drueding Bros., Expediter, Genoa, 14 cs.

Veneer Paper

Stevens Nelson Paper Corp., Talleyrand, Shimodzu, 6 cs.

Gauze Carbonizing Tissue Paper

B. F. Drakenfeld & Co., Scythia, Liverpool, 33 cs.

Gummed Paper

B. F. Drakenfeld & Co., Media, Liverpool, 69 cs., 3 drs.
B. F. Drakenfeld & Co., Scythia, Liverpool, 97 drums.

Cellophane Paper

Peerless Roll Leaf Co., American Veteran, London, 15 cs.

Coated Paper

Cork Import Co., American Traveler, Glasgow, 3 cs. (for cigarette tips).

Crepe Paper

Brundage Merchandise Co., Black Gull, Rotterdam, 27 cs.
Brundage Merchandise Co., American Judge, Rotterdam, 27 cs.

Baryta Coated Paper

Lep Transport, Inc., American Veteran, London, 57 cs.
C. Happel, Washington, Hamburg, 4 cs.

Drawing Paper

F. Weber Co., Nyborn, Genoa, 10 cs.
Aero Sea Shipping Co., American Veteran, London, 2 cs.

Opaline Board

E. de Vries Co., American Judge, Antwerp, 53 bls. (white).

Surface Coated Paper

Gevaert Co. of America, American Judge, Antwerp, 25 cs.
Gevaert Co. of America, Houffalize, Antwerp, 3 cs.

Parchment Paper

A. Doniger Co., Golden City, Hamburg, 6 bls.
A. Doniger Co., Washington, Hamburg, 4 cs.

Paper Serviettes

(———), Scythia, Liverpool, 7 cs.

Photo Paper

Ako Photo Supply Corp., American Shipper, London, 7 cs.
J. J. Gavin & Co., Queen Mary, Southampton, 6 cs.

Printing Paper

E. de Vries Co., Noordam, Rotterdam, 4 cs.
Stevens Nelson Paper Corp., Independence, Genoa, 26 cs.
Stevens Nelson Paper Corp., American Veteran, London, 2 cs.
S. Pomerance, American Veteran, London, 3 cs.

Wallpaper

C. A. Haynes Co., City of Swansea, Liverpool, 202 ctns.
C. A. Haynes Co., American Veteran, London, 71 bls.
J. E. Bernard & Co., American Veteran, London, 22 bls.

ANSUL SULFUR DIOXIDE CUTS COSTS IN PAPER PRODUCTION

TECHNICAL BULLETINS TELL HOW

ANSUL LIQUID SULFUR DIOXIDE

. . . is the quality standard of the industry . . . 99.9+% (by weight) pure.

. . . is shipped in 150-lb. cylinders, 2000-lb. ton drums, 30,000-lb. tank trucks, 40,000 and 60,000-lb. tank cars.

. . . is available for immediate shipment, in any desired quantity to any domestic and approved foreign destination.

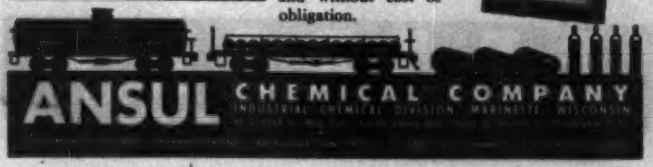
In the paper industry the use of Ansul Sulfur Dioxide . . . *plus the services of the Ansul staff of chemical engineers* . . . has resulted in new economies, better controls and improved quality in a variety of applications.

GROUNDWOOD PULP MANUFACTURERS use Ansul Liquid Sulfur Dioxide as a neutralizer in their peroxide bleaching operation. It is safe and economical to use . . . *and improves brightness, too!*

NEUTRAL SULFITE PULP MANUFACTURERS have avoided costly delays and shutdowns by using Ansul Liquid Sulfur Dioxide to manufacture their own sodium or ammonium sulfite.

And the Ansul "Controlled SO_2 System" eliminates the need for burner gas, decreases costs and provides efficiencies well worth investigating.

Ask for information relating to your operations. Valuable data will be sent to you promptly and Ansul's chemical engineering staff will cooperate with you willingly and without cost or obligation.



ANSUL CHEMICAL COMPANY
INDUSTRIAL CHEMICAL DIVISION MARINETTE, WISCONSIN

Intermaritime Forwarding Co., American Veteran, London, 51 cs.
(———), Ile de France, Havre, 5 cs.
American Express Co., Ile de France, Havre, 175 pkgs.

Wrapping Paper

A. Doniger, American Press, Hamburg, 74 bls.
McLaurin Jones Co., Eucadia, Glasgow, 2 rolls.
Paper Corp. of the U. S., Eucadia, Glasgow, 38 rolls.
Paper Corp. of U. S., American Traveler, Glasgow, 112 rolls.

Writing Paper

R. Stone, Washington, Hamburg, 12 cs.
(———), Washington, Havre, 1 cs.

Raw Base Paper

Lep Transport, Inc., American Veteran, London, 79 rolls.

Rags, Baggings, Etc.

(———), Expeditor, Leghorn, 100 bls. cotton rags.
Manufacturers Trust Co., Expeditor, Genoa, 85 bls. old bagging.
1st National Bank of Boston, Black Gull, Rotterdam, 220 bls. cotton rags.
Saldor Corp., Bristol City, Newport Mon, 190 bls. jute waste.
Saldor Corp., City of Swansea, Liverpool, 101 bls. jute waste.
J. Robbins, Lista, Havre, 20 bls. rags.
Midwest Waste Materials Co., Sachsenwald, Antwerp, 107 bls. scrap bagging, 193 bls. paperstock, 9 bls. bagging.
J. Eisenberg, Siboney, Havana, 37 bls. rags.
E. J. Lang, Bristol City, Avonmouth, 235 bls. old bagging.
Harris Goldman Co., Bristol City, Avonmouth, 101 bls. old fustians.
A. de Vries Trading Corp., Hada County, Dunkirk, 34 bls. paperstock.
National Bank of Detroit, Exeter, Marseilles, 103 bls. rags.
National City Bank, Pres. Polk, Bombay, 75 bls. old jute rags.
New England Waste Co., Pres. Polk, Bombay, 125 bls. old jute rags.
Manufacturers Trust Co., Enrico, Genoa, 68 bls. old bagging.
Chemical Bank Trust Co., Enrico, Genoa, 195 bls. hemp rags.
Manufacturers Trust Co., Maria C, Genoa, 84 bls. old bagging.
(———), Maria C, Genoa, 40 bls. old bagging.
E. J. Keller Co., Inc., Maria C, Genoa, 139 bls. old bagging.
(———), Ida Bakke, Genoa, 125 bls. old bagging.
Manufacturers Trust Co., Ida Bakke, Genoa, 115 bls. bagging.
A. de Vries Trading Corp., Ida Bakke, Genoa, 57 bls. scrap bagging.
National City Bank, Ida Bakke, Beirut, 9 bls. paperstock.
(———), Exermont, Trieste, 37 bls. paperstock.
Darmstadt Scott & Courtney, Claiborne, Rotterdam, 42 bls. rags.
Midwest Waste Materials Co., American Leader, Rouen, 55 bls. scrap bagging.
National City Bank, E. Horn, Alexandria, 83 bls. rags, 154 bls. bagging, 71 bls. scrap bagging.
National City Bank, P. de Saurel, Alexandria, 54 bls. old bagging, 174 bls. old tares.
Chase National Bank, P. de Saurel, Alexandria, 66 bls. rags.
Chemical Bank Trust Co., P. de Saurel, Alexandria, 64 bls. rags.
A. Bloch, American Traveler, Liverpool, 30 bls. new cuttings.
Robbins Forwarding Co., American Traveler, Liverpool, 42 bls. cotton rags.
(———), American Traveler, Glasgow, 66 bls. paperstock.
Mundane Co., American Veteran, London, 73 bls. rags.
Acadia Co., American Veteran, London, 71 bls. rags.
National City Bank, American Veteran, London, 55 bls. strings, 26 bls. paperstock.
(———), Edam, Rotterdam, 78 bls. rags.
Midwest Waste Materials Co., Edam, Rotterdam, 55 bls. scrap bagging.
A. W. Fenton Co., Aagtedyk, Rotterdam, 564 bls. scrap bagging.

Old Rope

International Purchasing Co., Bristol City, Avonmouth, 86 coils.
E. J. Keller Co., Inc., American Veteran, London, 41 coils old rope.
C. Smilee, American Traveler, Liverpool, 386 bls. old hemp cordage.

Casein

Borden Co. Chemical Division, Argentina, Buenos Aires, 500 bags.
American Cyanamid Co., Argentina, Buenos Aires, 1000 bags.
N. Y. Trust Co., Argentina, Buenos Aires, 1000 bags.
East Asiatic Co., Tokio, Buenos Aires, 5000 bags.
American Cyanamid Co., American Banker, Havre, 500 bags.
F. H. Paul & Stein Bros., American Banker, Havre, 419 bags.
Borden Co. Chemical Division, American Banker, Havre, 500 bags.
Tupman Thurlow Co., American Banker, Havre, 173 bags.
F. H. Paul & Stein Bros., American Banker, Hamburg, 200 bags.
Borden Co., Chemical Division, Mormactide, Buenos Aires, 1400 bags.
(———), Mormactide, Buenos Aires, 365 bags.
E. Lang, Rio Jachal, Buenos Aires, 2000 bags.
N. Y. Trust Co., Rio Jachal, Buenos Aires, 4000 bags.
P. A. Dunkel, Washington, Havre, 250 bags.

Woodpulp Boards

Jay Madden Corp., Elin Hope, Hango, 342 rolls, 146 bls.

Cut HOURS from your beating cycle

The unique 4-way pulping action of the PULP-MASTER provides complete disintegration of new pulp, wastepaper and even wetstrength papers in 10 to 40 minutes.

A New England mill reports: "We operate our Pulp-Master . . . primarily as a stock breaker . . . with stock of high consistency — 5½% to 7%. The Pulp-Master has reduced our beating cycle for all types of stock."

Available in four sizes: for batch or continuous operation. Write today for Bulletin EDJ-1019B, or ask your Jones representative for details.

PULP-MASTER

E. D. JONES & SONS COMPANY, PITTSFIELD, MASS.

BUILDERS OF QUALITY STOCK PREPARATION MACHINERY

Woodpulp

Pulp Sales Corp., Elin Hope, Hango, 3245 bls. sulphite pulp, 780 bls. sulphate pulp.
China American Pulp & Paper Co., Expeditor, Trieste, 300 bls. chemical pulp.
Parsons & Whittemore, Inc., Exeter, Marseilles, 107 bls. woodpulp.
Gottesman & Co., Inc., Topdalsfjord, Trondheim, 900 bls. sulphite pulp.
Perkins Goodwin & Co., Mongolia, Gothenburg, 250 bls. dry sulphate pulp.
Gottesman & Co., Inc., Mongolia, Gothenburg, 1016 bls. dry sulphate pulp.
Castle & Overton, Inc., Mongolia, Gothenburg, 1219 bls. dry sulphite pulp.
China American Pulp & Paper Co., Exermont, Trieste, 600 bls. chemical pulp.

IMPORTS AT BOSTON

Weeks Ending April 14-April 7

American Cyanamid Co., Tekla, Buenos Aires, 500 bags casein.
Swift & Sons, American Lawyer, Antwerp, 39 rolls greaseproof paper.
Elliott Addressing Machine Co., Talleyrand, Kobe, 15 cs. tenguju paper.

IMPORTS AT PHILADELPHIA

Weeks Ending April 14-April 7

(———), Rio Primero, Buenos Aires, 3000 bags.
National Casein Sales Co., American Banker, Havre, 500 bags casein.
Madden Reeve Angel & Co., Inc., Elin Hope, Hango, 1437 rolls newsprint.
Pulp Sales Corp., Elin Hope, 127 bls. dry mechanically ground woodpulp, 310 rolls paper waste.
Philadelphia National Bank, Bristol City, Swansea, 16 bls., 6 cs. parchment paper.
A. L. Diament & Co., Lista, Havre, 16 cs. wallpaper.
Elof Hansson, Inc., Exermont, Trieste, 1500 bls. chemical pulp.
Elof Hansson, Inc., Topdalsfjord, Larvik, 6500 bls. mechanical pulp.
Gottesman & Co. Inc., Mongolia, Gothenburg, 1016 bls. unbleached kraft pulp.
D. Benedetto, P. de Saurel, Alexandria, 33 bls. rags.
Castle & Overton, Inc., American Traveler, Glasgow, 116 bls. paperstock.

IMPORTS AT NORFOLK

Weeks Ending April 14-April 7

F. P. Gaskell & Co., American Traveler, Glasgow, 59 cs. coated paper (for cigarette tipping).
(———), American Traveler, Glasgow, 68 bls. bagging.
R. J. Reynolds Tobacco Co., Lista, Havre, 242 cs. cigarette paper.

IMPORTS AT BALTIMORE

Weeks Ending April 14-April 7

China American Pulp & Paper Co., Exermont, Trieste, 450 bls. woodpulp.

NEW LITERATURE

Cochrane Corp. Bulletin No. 4530, "Cochrane Hydrogen Zeolite (Cation Exchange) Softeners." Explains not only the process but the zeolites themselves and details of the equipment used in the process.

Westinghouse Electric Corp. Leaflet SA-6691, "Precipitron Electronic Air Cleaner." Discusses, in non-technical language, air cleaning units for factories, for stores, for offices, etc.

Peerless Pump Div., Food Machinery and Chemical Corp. Bulletin, "Peerless Fluidyne Pumps." Comprehensive coverage of the horizontal Fluidyne pump line.

Metallizing Engineering Co. Metco News, Vol. 5-7. Sales copy on new 3-step metallizing process.

National Safety Council. Four booklets that cover safety in the plant, at home and on the highway. "Aren't People Funny?", "K. O. Dirt and Disorder," "Cry Whoa!" and "Safety 'Round the Clock."

Electric Machinery Mfg. Co. Bulletin, "Polarized Field Frequency Controls (Standard Interrupting Capacity Type) for Synchronous Motors." Includes ratings, weights, dimension drawings, wiring diagrams, layout drawings and specifications for each type of control that is covered.

Wheelco Instruments Co. Bulletin, "Model 292 Capacitrol." Technical data and sales copy on indicating deflection type instrument operating with Wheelco Electronic Link.

General Electric Co. Booklet, GEZ-310. Fifteenth in the G-E More Power to America series, "The Instructor's Manual for the Motor Selection and Application Course." Includes the fundamentals of motors, types, fundamentals of motor selection, adjustable-speed drives, gear-motors, etc.

Keyes Fibre Sales Corp. Catalog. Complete descriptions, specifications and blueprints of the sixteen product lines.

Reeves Pulley Co. Bulletin G-511. Sales copy of new Electric Tachometer. Also Bulletin G-509, "Speed Control."

E. & M. Enterprises, Inc. Pamphlet, "Sigmamotor Pump." Describes method of forcing liquids, solutions or gases through tubing.

Shartle Bros. Machine Co. Bulletin No. 12-SB, "Duotrol." Introduces new system of automatic plug control which is applicable to all makes, types, and sizes of jordans and other conical refiners.

Towmotor Corp. Catalogue, "Towmotor-ize for Mass Handling." Sales copy.

Cooper Alloy Foundry Co. Bulletin, "Wide Range of Uses of Cast Monel." Concerned with the production of cast Monel and the range of desirable physical and mechanical properties obtainable. Includes charts showing the corrosion resistance of cast Monel to various materials, etc.

Hercules Powder Co. Technical Booklet, "Hercules Resins for Adhesives." Covers three broad adhesives types: rubber, cellulosics, and water soluble. Cites how they can be useful to the adhesives manufacturer.

U. S. Govt. Printing Office. Booklet, "Building America's Might" by Director of Defense Mobilization. First quarterly report to the president on the defense mobilization program of the U. S.

U. S. Rubber Co. Catalog, Specifications and engineering characteristics of latex insulated telephone cables. Also includes section on a new cable splice housing.

Leeds & Northrup Co. Catalog N-27, "Micromax and Speedomax — Speed Recorders." Discusses and compares the principles of operation of Micromax and Speedomax instruments, pointing out the special advantages of Speedomax where requirements must be met. Supplimented by illustrations of numerous installations.

Dorr Co. Bulletin, "The Dorrco Hydro-Treator," 32 pp. Illustrates and describes various types of Hydro-Treators available, as well as specific information on operating results, capacity ratings and chemical dosing requirements. Includes four pages of tables and formulæ used to solve water treatment problems.

"EXCELSIOR" FELTS

The Trademark of Felts of Superior Quality for Every Grade of Pulp and Paper

KNOX WOOLEN COMPANY
CAMDEN, MAINE

ASSOCIATIONS

EMPIRE STATE GROUP MEETS

Irving V. Earle, Upson Co., Lockport, N. Y., was reelected chairman of the Western New York Group, Empire State Section of TAPPI at the closing meeting of the 1950-51 season. Other officers elected were G. K. Storin, Niagara Alkali Co., Niagara Falls, vice-chairman; F. P. Heil, Lockport Felt Co., Newfane, N. Y., secretary; J. J. Forsythe, International Paper Co., Niagara Falls, N. Y., treasurer.

Committee chairmen for the coming year will be M. S. Scaletta, International Paper Co., publicity chairman; R. Winship, Moore Business Forms, publicity vice-chairman; D. Hart, Moore Business Forms, program chairman; E. F. Andrews, International Paper Co., program vice-chairman; George Norton, George Irish Paper Co., membership chairman; R. Vaeth, Robert Gair Co., membership vice-chairman; F. B. Pickett, Kimberly-Clark, attendance chairman; and R. J. Driscoll, International Paper Co., arrangements chairman.

Henry J. Perry, editor of the Paper Trade Journal, was the speaker of the evening. He spoke on the topic "What Are the Problems of the Paper Industry?"

Front Row—Left to Right—S. G. Stapley, Provincial Paper, Thorold Ontario; Hon. William H. Lee, Chairman, Board of the Lockport Felt Co., Newfane, N. Y.; Gordon Storin, Niagara Alkali, Niagara Falls, N. Y. Back Row—H. J. Perry, Editor, Paper Trade Journal; Ray T. Yates, Board of Director, Lockport Felt Co.; Irving V. Earle, Upson Co., Lockport, N. Y.

"The major problems today," said Mr. Perry, "are the shortages of materials, present government policies, the lack of long term economic stability, the lack of the right kind of leaders in Washington, and the excessive buying of certain government agencies." Among the remedies he suggested were:

1. Keep Washington and Congress informed of the problems faced by the paper industry.
2. Keep the public informed.
3. Stress the conservation of critical materials.
4. Use of editorial power to get the government to take proper remedies.
5. Campaign for risk capital.

SOLD JUNE 19-21, 1952

Empire State TAPPI-Niagara Branch CPPA has taken over the General Brock Hotel for their joint Spring Meeting on June 19-21, 1952. An outstanding program is being developed.

N. B. Secretaries should avoid conflicting meetings.

DEPENDABLE PERFORMANCE ALWAYS!

Patented and patents applied for in U.S.A. and foreign countries.

BRAMMER
recording consistency control

The unique operating principle of the Brammer as a non-mechanical Regulator, completely air operated, assures constant, dependable performance always.

The Brammer functions because of a variation in the slope of the stock, caused by changes in the internal friction of the stock suspension, which is directly related to consistency changes.

With no moving parts in the stock, and no interference of flow from mechanical friction, maintenance is practically eliminated, and no lubrication is required except on diluting water valve stem.

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FOR OVER 10 YEARS
we have been converting for others. We can put your facial tissue into boxed goods, toilet rolls or dinner napkins at a very reasonable price.
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PULP PLANT MODERNIZATION
Without Work Stoppage
Ferguson paper mill specialists can expedite a complete modernization program for you—efficiently—economically and without loss of production.
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Complete Service for
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DESIGN, CONSTRUCTION, MODERNIZATION

MISCO
STAINLESS STEEL CASTINGS
FOR ALL EQUIPMENT EXPOSED TO CORROSION BY SULPHITE ACIDS OR OTHER CORROSIVE AGENTS
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FOREST PRODUCTS PROGRAM

MADISON, Wis.—"Wood Mobilization Requirements and Developments in Machines, Products and Processes" is the theme of the program of technical papers scheduled for presentation at the fifth annual meeting of the Forest Products Research Society at Convention Hall, Philadelphia, May 7 through 13. All meetings will be held in Convention Hall.

A total of ten sessions co-sponsored by nine societies and associations will run from May 7 through May 11. The FPRS International Industry Show, also located in Convention Hall, will be open daily and evenings throughout the program and probably on Saturday.

Of particular interest to the pulp and paper industry will be Session V — May 9 a.m. Co-sponsor, American Paper and Pulp Assn. Theme, Utilization and Conversion of Woods and Mill Scrap. "Manufacture and Utilization of High Quality Chemigroundwood Pulps from Hardwoods," by Paul M. Schaffrath, New York State College of Forestry, Syracuse, N. Y.

"Using Sawmill By-Products for Paper Pulp on the Pacific Coast," by Howard W. Morgan, Pulp Division, Weyerhaeuser Timber Co., and C. L. Morey, Fibreboard Products Co.

"New Wood Fiber Boards Made with Non-Critical Binders," by Armin Elmendorf, president, Elmendorf Research, Inc., Chicago, Ill.

"The Effect of Storage of Southern Pine Pulpwood on Yield and Quality of Pulp," by Dr. Ralph M. Lindgren, Division of Pathology, Bureau of Plant Industry, New Orleans, La., and J. N. McGovern, J. S. Martin, and A. Hyttenen, Division of Pulp and Paper, U.S. Forest Products Laboratory, Madison, Wis.

CROWN ZELLERBACH CORPORATION
CAMAS, WASHINGTON

April 11, 1951

Lockwood Trade Journal Co , Inc
15 W. 47th Street
New York 19, New York

Gentlemen:

The attached check in the amount of $15.00 will cover the following subscriptions to the Paper Trade Journal:

One year subscription to:
Howard C. Hall
1740 NE. Dallas
Camas, Washington

Two year subscription to:
Robert G. Stewart
Rt. 1 - Box 3
Camas, Washington

For your information, these gentlemen are receiving the subscriptions to your trade journal as a prize for winning honorable mention in the Fourth Year Class of the 18th Annual Crown Willamette Paper School session.

Yours very truly,
G. Natwick
Assistant Resident Manager

A. G. Natwick/lb
Enclosure

NPTA ACTING EXEC. SECRETARY

J. H. Londergan has consented to serve indefinitely as acting executive secretary of the National Paper Trade Assn.

"Harry" Londergan, as he is known throughout the industry, joined the staff of the association in January 1934 and in addition to his personal handling of a vast amount of statistical work and financial details, has participated actively and constructively in all branches of association activities.

PENJERDEL PROGRAM

The program of the Pennsylvania-New Jersey-Delaware Division of The American Pulp and Paper Mill Superintendents Assn. includes the following papers and/or addresses: "A Way to Success," by Howard Street, National Vulcanized Fibre Co.; "Equipment Maintenance in Paper Mills," by John Todd, Hartford Insurance Co.; "Quality Control," by Donald Newcomb, Riegel Paper Corp.; "Paper Mill Equipment," by Cletus D. Coffman, Chesapeake Paperboard Co.; and "Pioneers, Then and Now," by James Q. du Pont, E. I. du Pont de Nemours & Co., Inc.

Arrangements also have been completed by the Division for a plant visit to the mill of the Riegel Paper Corp. at Milford, N. J. All persons making the tour of the mill are invited to a dinner at Riegel Ridge immediately following the plant visitation. The mill visit is scheduled to start at 3:30 p.m. on May 11.

TO SPEAK AT MINNEAPOLIS

Arrangements for the technical program of the spring meeting of the Northwestern Division of The American Pulp & Paper Mill Superintendents Assn. have been completed. This part of the program is scheduled for May 5, both morning and afternoon. It includes the following papers: "Industrial Wastes and Stream Pollution," by J. M. Holderby, manager, By-Products Division, Rhinelander Paper Co.; "Progress in Ammonium Bisulphite Pulping," by T. E. Detcher, The Barrett Division, Allied Chemical Co.; "Pulp and Paper Mill Knives—Their Selection, Use, and Grinding," by Carl Newell, Simonds Saw and Steel Co.; and "Power and Steam Generation," by Don Helmick, Helmick and Lutz.

SUPPLIERS

HARRIS-SEYBOLD CO. has recently given added responsibility to John C. Dabney, Eastern district manager by naming him director of marketing.

In announcing the promotion, Ren R. Perry, general sales manager, said, "A strong marketing department, completely familiar with problems of the graphic arts industry, is a vital element in this company's forward planning for expanded product lines and services. Jack Dabney's experience in

AMERICAN PAPER AND PULP ASSOCIATION'S PAPER PRODUCTION RATIO REPORT

(Production as per cent of normal capacity)

COMPARATIVE WEEKLY SUMMARIES

	Mar. 10	Mar. 17	Mar. 24	Mar. 31	Apr. 7
1951	101.5	103.1	102.6	101.3r	103.6
	Mar. 11	**Mar. 18**	**Mar. 25**	**Apr. 1**	**Apr. 8**
1950	96.9	96.5	97.6	97.0	94.6

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1950	92.6	95.6	96.7	93.4	96.4	97.7	85.3	99.6	96.1	101.0	100.3‡	93.7‡	95.8‡
1951	99.5‡	101.5‡	102.3‡										

‡ Preliminary.
r Revised.

COMPARATIVE YEARLY SUMMARIES

	1944	1945	1946	1947	1948	1949	1950	1951
Year to Date	88.0	88.3	99.4	105.0	100.5	91.9	95.1	101.2
Year Average	88.1	89.4	100.1	104.3	96.2	88.6	95.8‡	

PAPERBOARD OPERATING RATIOS†

	Mar. 10	Mar. 17	Mar. 24	Mar. 31	Apr. 7
1951	106	106	105	98	106
	Mar. 11	**Mar. 18**	**Mar. 25**	**Apr. 1**	**Apr. 8**
1950	89	92	95	92	93

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1950	88	92	91	92	91	94	83	100	96	102	101	95	94
1951	102	105	104										

All of the above data is based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

NOTE: The chart shows the ratio through December 1950 on the basis of 6-day capacity. Beginning with January 1951 the ratio is shown on the new basis of normal 6- and 7-day capacities. Corresponding weekly and monthly ratios for 1950 on the new basis, shown in the tables above, are somewhat lower.

Paperboard operating ratios continue on the basis of a 6-day week.

† Per cents of operation based on "inch-hours" reported to the National Paperboard Association.

equipment manufacturing and printing plant activities will provide forceful leadership for intensified marketing programs."

Mr. Dabney has been with Harris-Seybold since 1939. He will make his headquarters in Cleveland but is continuing as manager of the 12-state Eastern district area.

JACKSON & CHURCH CO., Saginaw, Mich., manufacturers of warm air furnaces and heavy machinery for the paper, food, chemical, plastics and brick making industries, have appointed Alfred S. Sampierre vice-president to fill the vacancy left by the death of Clarence Ahborn, who had been in charge of manufacturing operations.

Clifford T. Fogarty has been appointed assistant manager of the Paper Department of Stein, Hall & Co., Inc.

MANHATTAN PASTE & GLUE CO., INC., has appointed H. Richard Barnett, general manager of their Bulk & Raw Materials Division.

LINK-BELT CO. has appointed Harry G. Andersen, heretofore district sales engineer at Milwaukee, Wis., district manager at Birmingham, Ala., with headquarters in the Comer Building, 2100 Second Avenue N.

DRYCOR FELT CO., Staffordville, Conn., has elected Harold Holderith treasurer of the company. Mr. Holderith came to Drycor in 1941 and became assistant treasurer in 1945.

OBITUARIES

George Chahoon, Jr., 78, retired newsprint executive, died at Grand Mere, Que., on April 15.

He joined the Laurentide Paper Co. in 1902, served as president of the company until the Consolidated Paper Corp. took over the Laurentide mill.

Mr. Chahoon was considered the father of the modern Canadian newsprint industry.

He had also been a director of the Howard Smith Paper Mills of Montreal and the Dryden Paper Co.

Joseph T. Smith, president of the Eastern Magnesia Talc Co., Burlington, Vt., died at Fletcher Hospital in that city on March 23. He was active in the firm for 45 years.

ALVIN H. JOHNSON & CO.
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Consulting Engineers to
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Since 1929

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Pilot Plant Facilities
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Cleveland 11, Ohio

CLEARING HOUSE

HELP WANTED

MEN WANTED POSITIONS OPEN

We can place—assistant to vice president especially for inside sales work; managers, superintendents and asst. supts. for Fourdrinier machine mills making colored specialties and coarse papers, also for board mills and converting depts.; finishing supt. fine papers; production supt.; pulpwood procurement man.

Master mechanics, plant engineers, mechanical engineers, designers and draftsmen, salary range $4,000 to $10,000 year; chemists, chemical engineers and laboratory men; machine foremen (Cylinder and Fourdrinier); salesmen for papers, also for mechanical equipment for paper mills; beater engineers; machine tenders and back tenders.

LIST YOUR CONFIDENTIAL APPLICATION WITH US
to keep informed of attractive positions open in the pulp and paper mills.

CHARLES P. RAYMOND SERVICE, Inc.
294 Washington St., Boston 8, Mass.
SPECIALISTS IN PLACING PULP AND PAPER MILL EXECUTIVES

A-20

EXECUTIVE ENGINEER

A national building material manufacturer has opening for a mechanical engineer 35 to 45 years of age with executive ability who has had considerable experience in design and construction in some building materials operation. Salary commensurate with qualifications. Position is permanent with splendid opportunity for advancement and Company has liberal pension plan. Position to be Assistant Chief Engineer located in Chicago. Full charge of engineers and drafting room and smaller groups in plants located in other cities. Address Box 51-192, care Paper Trade Journal. A-20

SUPERINTENDENT OF FINISHING MILL

Outstanding paper converter in midwest has exceptional opening for man familiar with brush coaters, air knife coaters, and other related equipment.

Must have a record of successful operation in this field.

In reply give complete information as to age, education, salary, family, and reason for seeking change. Also please send photo.

Reply to Box Number 51-200, care Paper Trade Journal. M-4

CHIEF DRAFTSMAN

For building material manufacturer located in Chicago. To take charge of a drafting room of 15 to 25 draftsmen and engineers designing production machines, layouts, buildings, etc. Must have experience and proven ability in administrative capacity. Position permanent and with opportunity for advancement. Pension plan included. Salary open. Address Box 51-193, care Paper Trade Journal. A-20

SALARIED POSITIONS $3,500 to $35,000. We offer the original personal employment service (established 41 years). Procedure of highest ethical standards is individualized to your personal requirements. Identity covered; present position protected. Ask for particulars. R. W. BIXBY, INC. —117 Dun Bldg., Buffalo, 2, N. Y. TF

QUALITY CONTROL ENGINEER

Good opportunity for man experienced with mill operation to take charge quality control supervision in modern board mill, specializing in high grade folding box board located in New York Metropolitan Area. System to eventually be integrated with folding box plant.

Address Box No. 51-180, Paper Trade Journal M-4

HELP WANTED

PRODUCTION CHIEF

Paper converting, nationally known. Printing, coating, gumming, laminating, finishing operations. Lifetime position for top-flight production executive. Our people know of this ad. Send full details confidentially to President, Box 50-443, care Paper Trade Journal. TF

WANTED
CHEMIST-ENGINEER

for permanent position in expanding technical sales department. Chicago location. Kraft pulp mill experience desirable. Write Box 51-166, Paper Trade Journal. A-20

HELP WANTED
MACHINE TENDERS

For 84" Fourdrinier Paper Making Manufacturing Light and Heavy Weight Papers. Must be Experienced in Waste Paper Furnishes. Living Accommodations Available. Excellent Rate of Pay. Six and Seven Days Per Week. State Age, Experience, Date of Availability, etc. Reply Thomas A. Daisette & Sons, Inc., North Hoosick, New York.

A-20

PRODUCTION MAN

Paper converting, nationally known, folding box manufacturer. Lifetime position for executive with following qualifications: Production engineer, folding box background, mechanical engineering degree, age 28 to 33, live in Philadelphia. Address full details confidentially to Box 51-164, c/o Paper Trade Journal. A-27

WANTED — TOP GRADE SALESMANAGER for an eastern chipboard mill. Fully experienced and capable. Furnish details of experience, capabilities and references. Excellent opportunity. Address Box 51-78 care Paper Trade Journal. TF

WORKING SUPERINTENDENT for small, fast growing Eastern mill making lightweight specialties. Cylinder machine experience essential. State qualifications and salary expected. Address Box 51-87 care Paper Trade Journal. TF

Mid-Western Fourdrinier Specialty Mill has opening for experienced Production Superintendent. References required. Address Box 51-171 care Paper Trade Journal. A-20

EXPERIENCED PAPER MACHINERY DESIGNER with special knowledge of reels, winders and cutters. Excellent opportunity with well established company. Address Box 51-49 care Paper Trade Journal. TF

WANTED — SALES ENGINEER — Experienced in Pulp and Paper Mills, for sales and service work. Excellent opportunity with old established machinery manufacturer. In reply, give resume of education, experience and current salary. Address Box 51-86 care Paper Trade Journal. TF

GRADUATE MECHANICAL ENGINEER— With sufficient ability and experience in the manufacture of fine papers to be responsible for development program and to design, layout and supervise installation of equipment in midwestern mill. Address Box 51-151 care Paper Trade Journal. My-25

MECHANICAL DRAFTSMAN for general paper mill layout, machinery, piping, etc. Located in North Central Wisconsin. Would consider Mechanical Engineering graduate without experience. State qualifications and salary expected. Address Box 51-154 care Paper Trade Journal. A-20

HELP WANTED

WANTED — EXPERIENCED, COMPETENT PURCHASING AGENT for an eastern chipboard mill. Must be capable and fully experienced. Furnish details of experience, capabilities and references. Excellent opportunity. Address Box 51-153 care Paper Trade Journal. TF

WORKING MASTER MECHANIC, for one machine board mill. Must be thoroughly experienced in repairs, maintenance, new installations and have thorough knowledge of boilers. In reply state age, experience and salary desired. Address Box 51-191 care Paper Trade Journal. A-27

SITUATIONS WANTED

EXECUTIVE ACCOUNTANT

Capable, cost minded administrative executive, age 40, available immediately. Fully experienced in multi-plant paperboard, folding carton and printing industry. Box 51-197 Paper Trade Journal. M-11

EXECUTIVE
Paper, Printing or Inks

Executive managerial position wanted in sales or production. Widely known and recognized. Can convince you in personal interview. Prefer location New York-Connecticut or vicinity. Address Box 51-198 care Paper Trade Journal.

A-20

PLANT MANAGER—Paper and Board and their conversion; wants challenging opportunity. Highly successful in organization; administration; labor relations and high level production. Presently employed. Address Box 51-63 care Paper Trade Journal. A-27

PAPER MILL ENGINEER—Plant Engineer with design experience sulphite pulp, cylinder and Fourdrinier specialties, desires connection. Address Box 51-121 care Paper Trade Journal. TF

PLANT ENGINEER — Experienced Maintenance and engineering sulphite pulp and paper, desires opportunity with expanding concern. Address Box 51-163 care Paper Trade Journal. TF

SUPERINTENDENT—TOUR BOSS. Qualifications — Tissue Mill—all grades. Some board experience. Available at once. Address Box 51-179 care Paper Trade Journal. M-4

SALESMAN—Age 34. Moving to Chicago in October. Desires connection with fine paper jobber. Thirty years sales and mill experience. Address Box 34-181 care Paper Trade Journal. A-20

PERSONNEL MANAGER experienced in developing and supervising personnel department, including labor negotiations and labor relations. Address Box 51-172 care Paper Trade Journal. A-27

MIDDLE AGE MAN, now employed, fifteen years experience, supervising operation of Grocery, Sack, Specialty Bag Machines, Bag Finishing, Shipping, Warehousing. Also the operation of Gummers, Cameron and Fales Slitters, Hamblet Sheeter, Seybold Cutter. Desires to make permanent change. Prefer South. Address Box 51-199 care Paper Trade Journal. A-27

FINE PAPER EXECUTIVE—A practical paper maker with long experience seeks substantial position. Thorough knowledge of deinking. Good educational background. Address Box 51-195 care Paper Trade Journal. M-4

Beginning with the issue of May 4, 1951, minimum charge for Classified advertising will be $3.50 per issue.

FOR SALE

FOR SALE

Toilet Winders

2—72" Hudson-Sharp (Surface type winder)
1—84" Glasinger

J. J. ROSS COMPANY

250 Prelinghuysen Ave., Newark 5, N. J.
Tel BIgelow 3-3720 A-30

FOR SALE

1—84" 9-roll Supercalender Stack. Complete with drives.

J. J. ROSS COMPANY

250 Prelinghuysen Ave., Newark, N. J.
Tel BIgelow 3-3720 A-30

PAPER COATING MACHINERY MANUFACTURERS — Waxing, Oiling, Carbon Laboratory Coating and Treating and Flat Ream Measuring and Converting Machines. New improvement. THE MAYER MACHINE COMPANY, INC., 1313 Buffalo Road, Rochester, 11, N. Y. TF

FOR SALE

FOR SALE

1—Waldron two sided Synchrosat Coater —146" wide, practically new.

J. J. ROSS COMPANY

250 Prelinghuysen Ave., Newark, N. J.
Tel. Bigelow 3-3720 A-30

BOUGHT — SOLD

Soda Ash—Caustic Soda
Titaniums—Lithopone—Zinc Oxides
Glycols—Cellosolves—Ethanolamines
Bichromates—Dyes—Colors, etc.

CHEMICAL SERVICE CORPORATION

88-94 Beaver St., New York 5, N. Y.
A-26

FOR SALE—Seventy inch trim board machine consisting of duplex cylinder wet end with two Kamyr presses and 5 driers sixty inch diameter and sixteen driers thirty six inch diameter and cut off knife. Back drives included. May be seen running. Address Box 51-174 care Paper Trade Journal. A-29

FOR SALE

NAPKIN CONVERTING MACHINERY FOR SALE

One—13½"x13½" NAPKIN FOLDER: complete with steel and paper embossing rolls, motor and starter. Item #19
One—TRAY COVER MACHINE: sizes 14"x14" to 13"x20", complete with embossing rolls, motor and starter. Item #21
Two—HUDSON-SHARP 2 cylinder, 2 PLATEN PNEUMATIC BUNDLING PRESSES, 4½"x20".
One—12"x12" NAPKIN FOLDER: complete with steel and paper embossing rolls, motor and starter. Item #20
One—13"x13" HANDKERCHIEF FOLDER: complete with motor and starter. Item #30
One—10"x10" NAPKIN FOLDER: complete with motor and starter. Item #31
One—13½"x13½" NAPKIN FOLDER: complete with steel and paper embossing rolls, motor and starter. Item #16
One—REELING MACHINE: iron frame, 60" face, 40" diameter, adjustable for different lengths, complete with motor. Item #1
One—13½"x10" WEEFOLD NAPKIN FOLDER: complete with embossing roll, motor and starter. Item #12
One—TRIANGLE NAPKIN FOLDER: sizes 12" to 12" to 13½"x13½", complete with motor. Item #2
One—SINGLE CYLINDER HUDSON-SHARP PNUEMATIC BUNDLING PRESS: 40" long, 17½" wide.
One—REVOLVATOR: 30"x30" platform, 9' 10" lift, manual operation.

All of these machines are in good working order and are reasonably priced. They are offered subject to prior sale.

Address Box 51-188
care Paper Trade Journal A-30

FOR SALE

1—Sandusky Couch Roll—126" drilled face x 22" diameter.
1—123" 3 bowl revolving reel.

BEATERS
1—Dilts Iron Tub Laboratory Beater. Beater roll 16" diameter x 10¼" face, including motor.

CALENDER STACKS
1—72" 5 roll Calender Stack.
1—3 roll pressure calender—32" x 108".
1—72" 4 roll calender stack. (Extra heavy duty).
1—80"—3 roll.

CHEST
1—Cast Iron Stock Chest, 25' long x 6' high. (With agitator).

CHIPPER
1—80" Murray 4 knife Chipper—anti-friction bearings.

CRUSHER & HAMMERMILL
1—Murray Chip Crusher.
1—Jeffrey Hammermill.

CYLINDER MOLDS
1—88" diameter x 72" face.
1—84" diameter x 70" face.
3—36" diameter x 54" face.
1—36" diameter x 96" face.
1—48" diameter x 72" face.
4—36" diameter x 78" face.

DRIVES
1—#4¾ Reeves Drive.
1—#4 Reeves Drive.
1—Reliance Electric Drive, complete with 5 gear head motors.
3—#3 Reeves Drives (totally enclosed).

V-BELT DRIVE
(1—21½" diameter x 7½" face, 4 groove.
(1—16½" diameter x 7½" face, 5 groove.
(With clutch).

DRYERS
1—Complete unit, consisting of 6 dryers, 36" diameter x 38" face, including frames, gears, anti-friction bearings.
2—24" diameter x 48" face.
1—48" diameter x 91" face.
3—36" diameter x 96½" face.
1—36" diameter x 143" face.
1—54" diameter x 130" face.
1—48" diameter x 79" face.
1—48" diameter x 82" face.
3—Dryers 48" diameter x 134" face.
1—24" diameter x 92½" face.
2—29" diameter x 48" face.
1—84" diameter x 48" face.
1—60" diameter x 66" face.
1—48" diameter x 68" face.
2—36" diameter x 66" face.
1—30" diameter x 61" face, complete with frames.

FLAT SCREENS
1—6 plate Shartle Flat Screen
7—Packer, 12 plate, roller shoe type.

FRAMES
Vertical frames for 100 dryers, 48" diameter, with bearings.

JORDANS
1—Horne Jordan.
2—Noble & Wood Mammoth.

LIME SLUDGE FILTERS
2—IMPCO Lime Sludge Filters, vacuum type, 5' diameter x 4' face.
2—IMPCO Lime Sludge Filters, vacuum type, 5' diameter x 10' face.

MISCELLANEOUS
1—Caustic Mixer.

MOTORS
1—125 h.p., 1700 r.p.m.
1—30 h.p., 850 r.p.m.
Write us regarding your requirements.

PRESSES
3—Sets Primary Presses, complete, 145" face. Anti-friction bearings. Also all types of rolls for 145" wet end.

PULLEYS
Various cone and assorted pulleys.

PULPERS
1—Jones Pulper. Complete with motor and drive.
1—Noble & Wood Pulper—Iron Tub.

PUMPS
Various sizes of Centrifugal and Plunger Pumps. Write us regarding your particular requirements.
4—Shartle Brothers circulating pumps, each 4,000 g.p.m.

REEL
1—104" Beloit two bowl reel.
1—123"—3 bowl Revolving Reel.

REFINERS
3—#1 Claflin Refiners.

ROLLS
Pair, Table, Press, Breast, Couch, etc. Various sizes and types. (Bronze, Rubber, Iron, etc.)

ROTARY SCREENS
1—#2 Bird Rotary Screen.
1—#2A Bird Rotary Screen.
3—#2A Cylinders, only (for Bird Rotary Screens). (Chrome plated).

SAVEALLS
1—#5 Bird Saveall.
2—Savealls, 36" diameter x 136" face cylinder molds, iron end vats.

SHEETERS
1—64" Hamblet.

SHREDDERS
2—Daniels Rag Cutters.

SLITTERS & WINDERS
1—49" Cameron—Type 40-4-B.
2—42" Cameron—Type 24-2-A.
1—118" 2 drum Waldron.
2—112" Cameron—Type 18.
1—104" Beloit two drum winder.
1—42" Cameron Constant Tension with pneumatic control.
1—42" Cameron—Type 6.
1—32" Cameron—Type 6-S.
1—68" Cameron—Type 20-3A.
1—92" Cameron—Type 12 (Mill type).
1—42" Johnstone Slitter.
1—92" Moore & Whtie 4 drum winder.
1—82" Cameron—Type 10-10.

STOCK PUMPS
1—10 x 20 Shartle Duplex.
1—7 x 16 Shartle Duplex.
1—10 x 20 Shartle Triplex.
Advise us to your requirements.

SUCTION BOXES
3—Suction Boxes, 62" drilled face x 6" wide.

SUCTION COUCH ROLL
1—Sandusky Couch Roll 126" drilled face x 22" diameter.

VACUUM PUMPS
1—#1 Nash Hytor.

YANKEE DRYERS
1—48" Face x 84" Diameter, Frames & Bearings.
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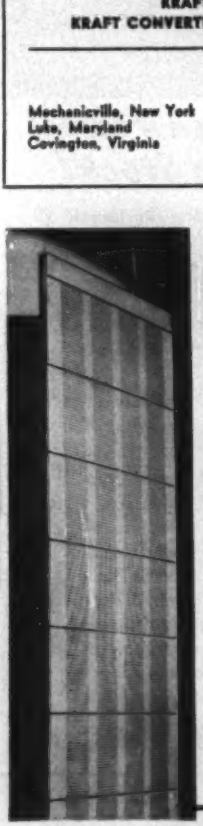

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Are Now In Service

"Hardy" fabricated screen plates, made by Magnus, have a high-strength, thin-sheet design—specially engineered for maximum flow. That's why they assure:

1. **Increased Plate Capacity.** The thin sheet eliminates relief milling—permits higher capacity per plate.

2. **Longer Life.** Slots remain sharp, side walls highly polished. There's greatly improved resistance to corrosion.

3. **High, Sustained Yield.** You get consistent, uniform quantities of cleaner pulp.

It all adds up to improved performance at reduced operating cost. Complete information is yours on request.

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Metalworkers for the Paper Trade

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VALVES: GATE, SWING CHECK, BLOW, GLOBE, ANGLE AND "Y"

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A. M. Meincke & Son, Inc.
Vanderbilt Co., R. T.
Wyandotte Chemicals Corp., Michigan Alkali Div.

FILTERS
Bird Machine Company
J. M. Huber Corp.
Hungerford & Terry, Inc.
Johnson Corp.
Moore & White Co.
I. O. Ross Engrg. Corp.
The Sandy Hill Iron & Brass Works
Walworth Company

FITTINGS
The Bagley & Sewall Company
Crane Company
Shartle Bros. Mch. Co.
Walworth Company

FLEXIBLE COUPLINGS
Egan, Frank W., & Co.
Lovejoy Flexible Coupling Co.
John Waldron Corp.

FLOORING, GRATING AND TREADS
The Goodyear Tire & Rubber Company
Norton Co.

FLOW BOXES, STAINLESS-CLAD
Lukens Steel Co.
The Sandy Hill Iron & Brass Works

FORK LIFT TRUCKS
Clark Equipment Company Industrial Truck Division
Towmotor Corp.

FORMATION TESTERS
Thwing-Albert Instrument Co.
Williams Apparatus Co., Inc.

FORMING MACHINES
Black Clawson Company
Downingtown Mfg. Co.
The Moore & White Co.
Noble & Wood Machine Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

FREENESS TESTERS
Testing Machines, Inc.
Williams Apparatus Co.

FURNACES
Hoft Company, Inc.

GASKETS
The Goodyear Tire & Rubber Company

GEARS
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Black Clawson Company
De Laval Steam Turbine Co.
Downingtown Mfg. Co.
Frank W. Egan & Co.
Farrel-Birmingham Co.
E. D. Jones & Sons Co.
Moore & White Co.
D. J. Murray Mfg. Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.
Westinghouse Electric Corp.
Western Gear Works

GRAPPLES
Blaw-Knox Company

GRINDERS
Carthage Machine Co.
Farrel-Birmingham Co.
Gibbs-Brower Company, Inc.
Lobdell Co.
Norton Company
Samuel C. Rogers and Company
The Sandy Hill Iron & Brass Works

GRINDING WHEELS
Norton Company

GUIDES
The Bagley & Sewall Company
Egan, Frank W., & Co.
Gilbert & Nash Co.
The Moore & White Co.
Mount Hope Machinery Co.
John Waldron Corp.

GUMMING MACHINES
Dilts Machine Works
Egan, Frank W., & Co.
The Sandy Hill Iron & Brass Works

GUMS
National Starch Products, Inc.
Stein-Hall Co., Inc.

HEAT EXCHANGERS AND RECOVERY SYSTEMS
Stickle Steam Specialties Co.
Westinghouse Electric Corp.

HEATING, VENTILATING & AIR CONDITIONING
The Appleton Machine Co.
E. D. Jones & Sons Co.
General Electric Co.
D. J. Murray Mfg. Co.
Red-Ray Mfg. Co., Inc.
Ross Engineering Corp., I. O.
Stickle Steam Specialties Co.
Valley Iron Works Co.
Westinghouse Electric Corp.

HOSE (Air, Water, Suction, etc.)
The Goodyear Tire & Rubber Company

HUMECTANTS
Aktivin Division, Heyden Chemical Corp.
Nopco Chemical Co.
Wyandotte Chemicals Corp., Michigan Alkali Div.

IMPREGNANTS
American Cyanamid Company Industrial Chemicals Division
B. F. Goodrich Chemical Co.

INDENTING MACHINES
Dilts Machine Works

INDUSTRIAL TRACTORS
Clark Equipment Company Industrial Truck Division
Towmotor Corp.

INKOMETER
Thwing-Albert Instrument Co.

INSTRUMENTS, TESTING AND MEASURING
Beckman Instruments, Inc.
Brown Instrument Co.
Bunge Pulp & Paper Co.
Cambridge Instrument Co.
General Electric Company
W. & L. E. Gurley
B. F. Perkins & Son
Photovolt Corp.
Taylor Instrument Cos.
Testing Machines, Inc.
Thwing-Albert Instrument Co.
Williams Apparatus Co.

JOINTS
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Johnson Corp.
Lovejoy Flexible Coupling Co.
Shartle Bros. Mch. Co.

JORDAN FILLINGS
Appleton Machine Co.
Baker Brothers Mfg. Co.
E. D. Jones & Sons Co.
Shartle Bros. Mch. Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.

KNIVES
Black Clawson Company
Dilts Machine Works, Inc.
Hamblet Machine Co.
Heppenstall Company
E. D. Jones & Sons Co.
The Moore & White Co.
Simons Worden White Co.
Taylor Stiles & Co.
Valley Iron Works Co.

KRAFT WRAPPING PAPERS
Canadian Newsprint Supply Co.

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Thwing-Albert Instrument Co.

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Bauer Brothers Co.
Beckman Instruments, Inc.
Bird Machine Company
Dilts Machine Works
W. & L. E. Gurley
Egan, Frank W., & Co.
E. D. Jones & Sons Co.
Taylor Instrument Companies
Testing Machines, Inc.
Valley Iron Works Co.
John Waldron Corp.
Williams Apparatus Co., Inc.

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Dilts Machine Works
Egan, Frank W., & Co.
John Waldron Corp.

LAY BOYS
Dilts Machine Works
Gibbs-Brower Company, Inc.
Hamblet Machine Co.
Moore & White Co.

LIFT TRUCKS
Clark Equipment Company Industrial Truck Division

LINTER COTTON
Railway Supply & Mfg. Co.

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Gulf Refining Co.
Sinclair Refining Co.

Socony-Vacuum Oil Co.
Sun Oil Company
The Texas Company
Tide Water Associated Oil Co.

MAGAZINE REELS
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Dilts Machine Works
Shartle Bros. Mch. Co.
Stephens-Adamson Mfg. Co.
The Wellman Engrg. Co.

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Farrel-Birmingham Co.
Lobdell Co.
Stephens-Adamson Mfg. Co.
Testing Machines, Inc.

MICRO-CRYSTALLINE WAXES
Bareco Oil Co.
Bunge Pulp & Paper Co.
Moore & Munger
Sun Oil Company

MOISTURE CONTENT CONTROL
Cambridge Instrument Co.
Stickle Steam Specialties Co.
Williams Apparatus Co., Inc.

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Allis-Chalmers Mfg. Co.
Fairbanks, Morse & Co.
General Electric Company
Reliance Electric & Engrg. Co.

NEWSPRINT
Bunge Pulp & Paper Co.
Canadian Newsprint Supply Co.

NICKEL AND NICKEL ALLOYS
The International Nickel Co.

NOZZLES
Spray Engrg. Co.

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Johnson Corporation
The Moore & White Co.
Shartle Brothers Machine Co.
Clark Equipment Company
Industrial Truck Division

PALLET TRUCKS
Clark Equipment Company
Industrial Truck Division

PAPER MACHINE DRIVES
The Bagley & Sewall Company
Manchester Machine Co.

PAPER MACHINES
The Bagley & Sewall Company
Bagley & Sewall Co.
Black Clawson Company
Downingtown Mfg. Co.
Gibbs-Brower Company, Inc.
Thomas W. Hall Co.
Lukenweld
Moore & White Co.
Pusey & Jones Corp.
J. J. Ross Company
Ross Paper Machy. Corp.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.

PAPER MACHINE SLICES
Black Clawson Company
E. D. Jones & Sons Co.
The Moore & White Co.
The Sandy Hill Iron & Brass Works
Valley Iron Works Co.

PAPER TUBE MACHINERY
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Gibbs-Brower Company, Inc.
Thomas W. Hall Co.
Hudson Sharp Machine Co.
Jagenberg-Werke Akt. Ges.
Langston Co., Samuel M.

PARAFFINE WAXES
Moore & Munger
Sun Oil Company

PARAFFIN WAX EMULSIONS
Nopco Chemical Co.

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Dilts Machine Wks.
Frank W. Egan & Co.
Gibbs-Brower Company, Inc.
Murray, D. J., Mfg. Co.
Moore & White Co.
Potdevin Machine Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Waldron Corp., John

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F. L. Smidth & Co.

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Tiwing-Albert Instrument Co.

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Babcock & Wilcox Co.
Crane Company
Grinnell Company
Michigan Steel Casting Co.
National Tube Co.
Walworth Company

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Armco Drainage & Metal Products, Inc.
Crane Company
Grinnell Company
Michigan Steel Casting Co.
Walworth Co.

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Industrial Chemicals Division
General Dyestuff Corp.
Monsanto Chemical Company
National Aluminate Corp.
Nopco Chemical Co.
Rohm & Haas Co.

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American Cyanamid Company
Industrial Chemicals Division
Aktivin Division, Heyden Chemical Corp.
B. F. Goodrich Chemical Co.
Naugatuck Chemical
Division of U. S. Rubber Co.
Nopco Chemical Co.

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Perkins & Son, Inc., B. F.

PLATES
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Babcock & Wilcox Co.
J. O. Ross Engrg. Corp.
Lukenweld Division
Lukens Steel Company
Timken Roller Bearing Co.

PLUGS
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E. D. Jones & Sons Co.
Shartle Brothers Machine Co.

POPE TYPE REELS
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Manchester Machine Co.

PRECISION SAMPLE CUTTER
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Thwing-Albert Instrument Co.

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General Dyestuff Corp.

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Combustion Engineering-Superheater, Inc.

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Farrel-Birmingham Co.
Gibbs-Brower Company, Inc.
Thomas W. Hall Co.
Hudson-Sharp Machine Co.
The Moore & White Co.
Potdevin Machine Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works Co.
Waldron Corp., John
H. G. Weber & Co., Inc.
Williams Apparatus Co.

PULLEYS
Lovejoy Flexible Coupling Co.

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Thwing-Albert Instrument Co.

PULP CLEANERS
Nichols Engrg. & Research Corp.

PULP STOCK VALVES
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Record Fdy. & Mach. Co.
Shartle Brothers Machine Co.

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Bauer Brothers Co.
The Cowles Company
Dilts Machine Works
E. D. Jones & Sons Co.
Morden Machines Co.
Shartle Brothers Machine Co.

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Gottesman & Co., Inc.
Lyddon & Co. (America), Inc.
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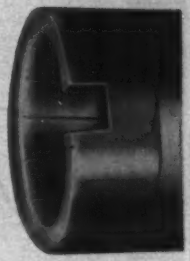

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A super-quality core to meet demands for extra strength and service. This is our highest grade core, and is recommended for those that need the best.

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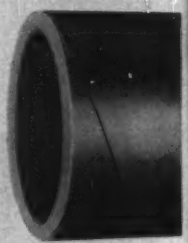

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Test and Record Stiffness of Most Papers and Paper Boards in 21 Seconds

That's all it takes to measure paper up to 0.25" thick with the motorized Gurley Stiffness Tester. It easily handles tissue, newsprint, book, bonds, ledgers, industrial papers, cardboard and carton stocks, and permits a wide range of readings from 1 to 3,358,720.

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Write for Bulletin No. 1400. It describes the motor-driven and hand-operated models as well as other Gurley paper-testing instruments. W. & L. E. Gurley, 520 Fulton Street, Troy, New York.

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Norton Company

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Williams Apparatus Co., Inc.

PULVERIZING MILLS
Combustion Engineering-Superheater, Inc.
F. L. Smidth & Co.

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Black Clawson Company
Buffalo Pumps, Inc.
DeLaval Steam Turbine Co.
Downingtown Mfg. Co.
Fairbanks, Morse & Co.
Gibbs-Brower Company, Inc.
Byron Jackson Co.
Johnson Corp.
Moore & White Co.
Nash Engineering Co.
Roots Connersville Blower Corp
J. J. Ross Company
Ross Paper Machy. Corp.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.

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General Dyestuff Corp.
Rohm & Haas Co.

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B. F. Perkins & Son, Inc.
Taylor-Stiles & Co.

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Pusey & Jones Corp.
Ross Engineering Corp., J. O.
Valley Iron Works Co.

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Black Clawson Company
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Hudson Sharp Machine Co.
Moore & White Co.
Rodney Hunt Machine Co.
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Shartle Brothers Machine Co.
The Smith & Winchester Mfg Co.

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Bauer Brothers Co.
The Cowles Company
Dilts Machine Works
Gibbs-Brower Company, Inc.
E. D. Jones & Sons Co.
Morden Machines Co.
Murray, D. J., Mfg. Co.
Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Sprout Waldron & Co., Inc.
Sutherland Refiner Corp.
Valley Iron Works

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Bird Machine Company
General Electric Co.
Johnson Corp.
Shartle Brothers Machine Co.
Strickle Steam Specialties Co.
Taylor Instrument Companies

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B. F. Goodrich Chemical Co.
The Goodyear Tire & Rubber Company
Hercules Powder Co.
Monsanto Chemical Company
Naugatuck Chemical Division of U. S. Rubber Co.
Napco Chemical Co.
Plaskon Division, Libbey-Owens-Ford Glass Co.
Rohm & Haas Co., Resinous Products Div.

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The Bagley & Sewall Company
Black Clawson Company
Dilts Machine Works
Downingtown Mfg. Co.
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Farrel-Birmingham Co.
Gibbs-Brower Company, Inc.
Lobdell United Co.
The Moore & White Co.
D. J. Murray Mfg. Co.
Perkins, B. F., & Sons Co.
Pusey & Jones Corp.
J. J. Ross Company
Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
U. S. Rubber Co.
Valley Iron Works Co.
Waldron Corp., John
Wheeler Roll Co.

ROLL COVERS
The Goodyear Tire & Rubber Company

ROLL HANDLING EQUIPMENT
Dilts Machine Works (Kohler Systems)

ROLL STANDS
Cameron Machine Co.
Dilts Machine Works (Kohler Systems)
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Moore & White Co.
Potdevin Machine Co.
The Sandy Hill Iron & Brass Works
John Waldron Corp.
H. G. Weber & Co., Inc.

ROPE CARRIERS
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The Moore & White Co.
The Sandy Hill Iron & Brass Works

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F. L. Smidth & Co.

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The Moore & White Co.
Shartle Bros. Mch. Co.

RUBBER PRODUCTS
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B. F. Goodrich Chemical Co.

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Gibbs-Brower Company, Inc.
Moore & White Co.
Potdevin Machine Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Waldron Corp., John
Weber, Herman G.

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Bird Machine Company
Chicago Bridge & Iron Co.

SCALES
Fairbanks, Morse & Co.
Merrick Scale Mfg. Co.
Testing Machines, Inc.

SCREEN PLATES
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Fitchburg Screen Plate Co.
Magnus Metal Corp.
Morgy Paper Mill Supply Co.
Testing Machines, Inc.

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Appleton Machine Company
The Bagley & Sewall Company
Bird Machine Company
Carthage Machine Co.
The Cowles Company
Dilts Machine Works, Inc.
Downingtown Mfg. Co.
Gibbs-Brower Company, Inc.
E. D. Jones & Sons Co.
Moore & White Co.
D. J. Murray Mfg. Co.
J. J. Ross Company
Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Stephens-Adamson Mfg. Co.
Valley Iron Works Co.

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Thomas W. Hall Co.
Valley Iron Works Co.
Williams Apparatus Co., Inc.

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Jagenberg-Werke Akt. Ges.

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Moore & White Co.
Sandusky Fdy. & Mch. Co.
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.

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Bauer Brothers Co.
Carthage Machine Co.
Gibbs-Brower Company, Inc.

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Manchester Machine Co.

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Glidden Company
Hercules Powder Co.
The Hubinger Co.
Monsanto Chemical Company
National Aluminate Corp.
Nopco Chemical Co.
Stein-Hall Co., Inc.
Wyandotte Chemicals Corp., Michigan Alkali Div.

SIZING TESTER
W. & L. E. Gurley
Testing Machines, Inc.
Thwing-Albert Instrument Co.
Williams Apparatus Co., Inc.

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E. I. du Pont de Nemours & Co.
General Dyestuff Corp.
Monsanto Chemical Co.
National Aluminate Corp.
Rohm & Haas Co.
Vanderbilt Co., R. T.
Wyandotte Chemicals Corp., Michigan Alkali Div.

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Carthage Machine Co.
Clark-Aiken Co.
Dietz Machine Works
Dilts Machine Works
Downingtown Mfg. Co.
Frank W. Egan & Co.
Gibbs-Brower Company, Inc.
Thomas W. Hall Co., Inc.
Hamblet Machine Co.
Hudson-Sharp Machine Co.
Jagenberg-Werke Akt. Ges.
Langston Co., Samuel M.
Moore & White Co.
D. J. Murray Mfg. Co.
Potdevin Machine Co.
J. J. Ross Company
Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Works
Smith & Winchester Mfg. Co.
Valley Iron Works Co.
Waldron Corp., John

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Chicago Bridge & Iron Co.

SOFTNESS-STIFFNESS TESTER
W. & L. E. Gurley
Testing Machines, Inc.
Thwing-Albert Instrument Co.

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General Dyestuff Corp.
Nopco Chemical Co.

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Egan, Frank W., & Co.
The Sandy Hill Iron & Brass Works
John Waldron Corp.

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Williams-Gray Co.

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Michigan Steel Casting Co.
U. S. Steel Corp.

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Clinton Foods, Inc.
The Hubinger Co.
National Starch Products Inc.
Stein-Hall Co., Inc.

STEAM JOINTS
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Shartle Bros. Mch. Co.

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Combustion Engrg. Co., Inc.
Johnson Corp.
Stickle Steam Specialties Co.

STEEL
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Carnegie Illinois Steel Co.
Lukens Steel Company
D. J. Murray Mfg. Co.
The Sandy Hill Iron & Brass Works
U. S. Steel Corp.

STEEL, CLAD
Babcock & Wilcox Co.
Lukens Steel Company

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The Sandy Hill Iron & Brass Works

STRETCH TESTER
Thwing-Albert Instrument Co.

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E. D. Jones & Sons Co.
Moore & White Co.
Shartle Brothers Machine Co.
Valley Iron Works Co.

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Downingtown Mfg. Co.
E. D. Jones & Sons Co.
Moore & White Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

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SULPHUR
Texas Gulf Sulphur Co.

SULPHUR BURNERS
Valley Iron Works Co.

SULPHUR DIOXIDE
American Cyanamid Company, Calco Chemical Div.
Anacul Chemical Co.
Virginia Smelting Co.

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B. F. Perkins & Son, Inc.

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B. F. Goodrich Chemical Co.
The Goodyear Tire & Rubber Company
Naugatuck Chemical Division of U. S. Rubber Co.
Nopco Chemical Co.

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Dilts Machine Works (Kohler Systems)

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Vanderbilt Co., R. T.

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Kalamazoo Tank & Silo Co.
B. F. Perkins & Sons, Inc.
J. O. Ross Engrg. Corp.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Waldron Corp., John

TEARING TESTERS
Thwing-Albert Instrument Co.
Testing Machines, Inc.

TENSILE TESTERS
Bunge Pulp & Paper Co.
Thwing-Albert Instrument Co.
B. F. Perkins & Son, Inc.
Testing Machines, Inc.
Nopco Chemical Co.

THICKENERS, DECKERS AND SAVEALLS
The Appleton Machine Co.
Bird Machine Company
Carthage Machine Co.
Chicago Bridge & Iron Co.
Dilts Machine Works
Downingtown Mfg. Co.
Moore & White Co.
D. J. Murray Mfg. Co.
J. J. Ross Company
Ross Paper Machy. Corp.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works Co.

TITANIUM
American Cyanamid Co., Calco Chemical Div.
E. I. du Pont de Nemours & Co.
Titanium Pigment Co.
R. T. Vanderbilt Co.

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Walworth Company

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Tournotor Corp.

TRANSMISSIONS
Dodge Mfg. Corp.
Link Belt Company
Lovejoy Flexible Coupling Co.
Stephens-Adamson Mfg. Co.

TRAPS
Crane Co.
Johnson Corporation
Shartle Bros. Mch. Co.
Stickle Steam Specialties Co.

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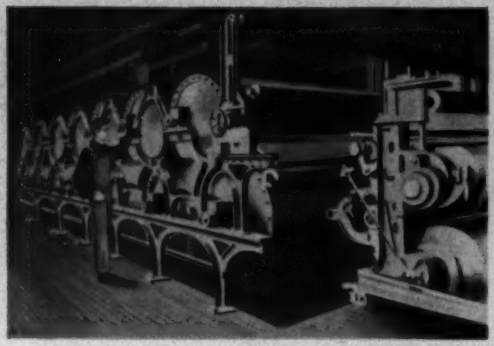

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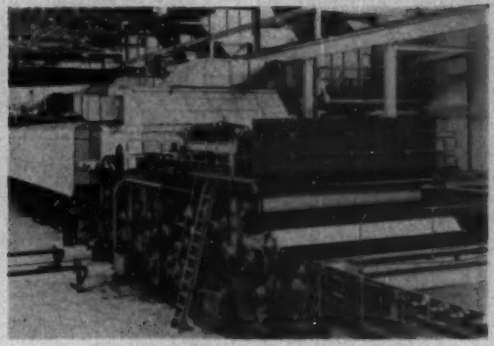

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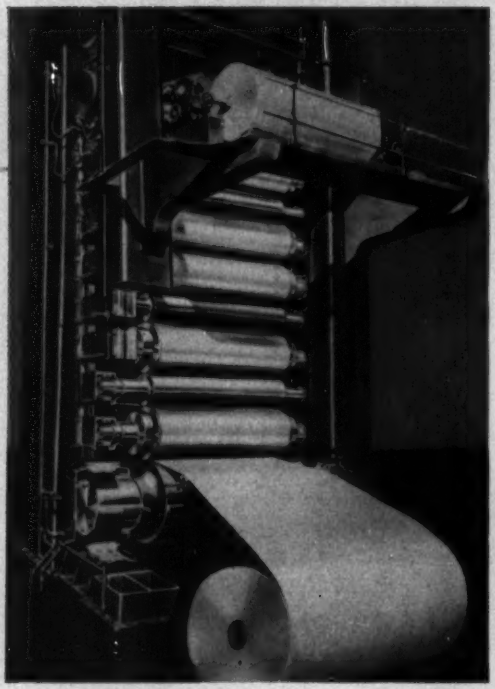

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